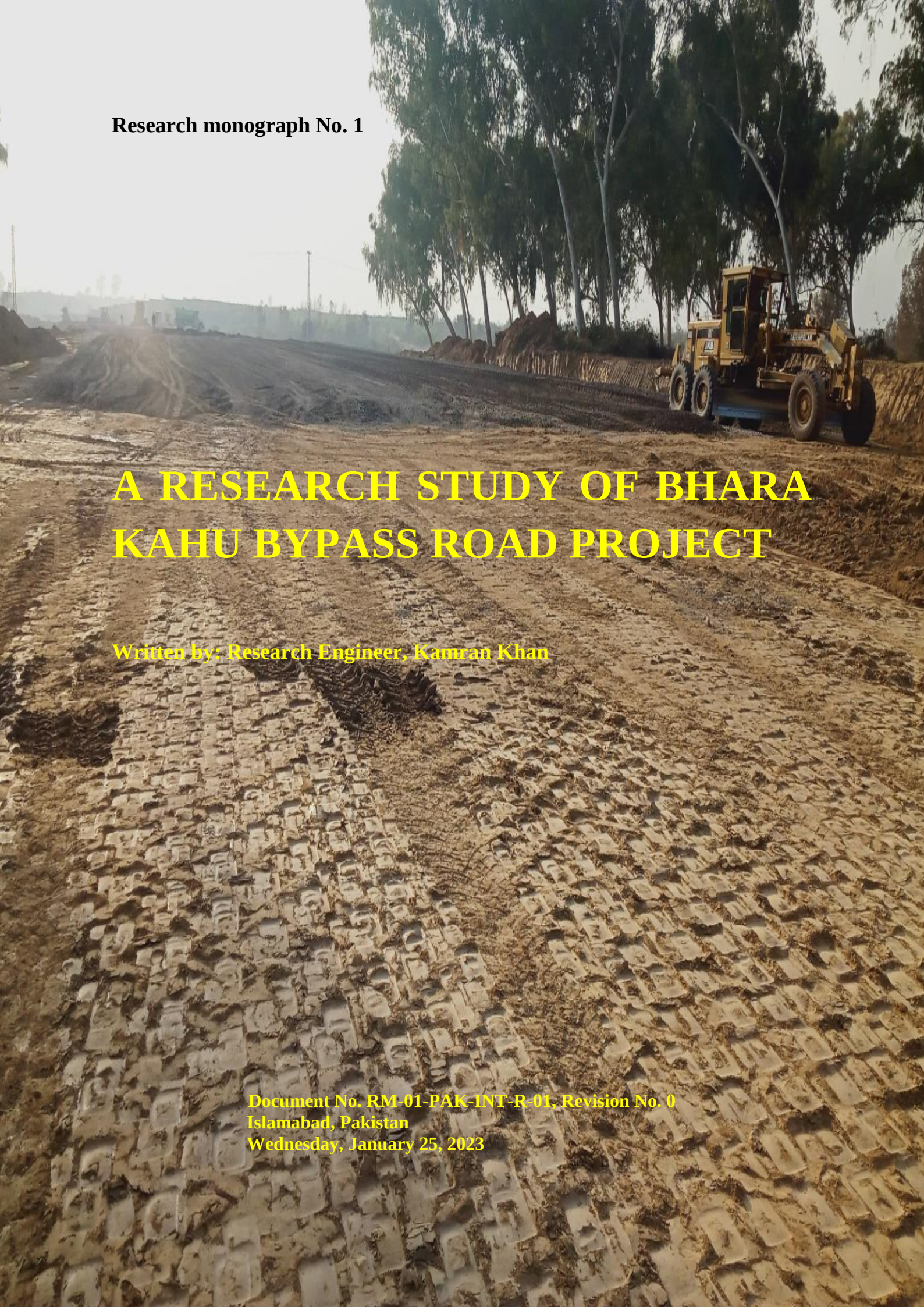

Research monograph No. 1

A RESEARCH STUDY OF BHARA KAHU BYPASS ROAD PROJECT

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Document No. RM-01-PAK-INT-R-01, Revision No. 0
Islamabad, Pakistan
Wednesday, January 25, 2023

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1. About the author:

Kamran Khan is the author of this research monograph. Author believes the concept of globalization and shared responsibilities. Therefore, he got research assistance at different levels from miscellaneous professionals around the globe. Kamran Khan is academically qualified as a master of science (MS) in mechanical engineering from Zaporozhe State Technical University, Ukraine. His professional qualification is academically recognized from the mentioned below six institutions of European Union.

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Loyalty to the state of Pakistan in accordance with article 5(1) of the constitution of Pakistan, and code of ethics of Pakistan Engineering Council, and Pakistan's international commitments to global community and shared responsibilities push me to divulge the real face of public sector development project named "Bhara Kahu bypass road project".

This research monograph will be shared all the international partners including United Nations, international donors, international organizations, international research institutions, International financial institutions, libraries, specialized departments of universities around the globe, international human rights organizations, judicial organs around the globe, international media etc. **If any honourable professional has questions or comments or interested in future research collaboration on mutually agreed research questions, please feel free to email me**.

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2. <u>Acknowledgement</u>:

This monograph was researched and written from November 01 2022 to January 25, 2023 (86 days). This is non-funded research project. I would like to recognize and express appreciation to the numerous professionals of miscellaneous specialized organizations, manufacturers, research organizations and the ministries around the globe, who assist me to provide the answers of technical questions, shared data, technical reports, research papers, commercial prices etc. The list of people who contributed in the research monograph at different levels is inked below:

1. Nikita V. Chmykh (Perm, Russian Federation) – Engineer, Department Roads and Bridges, Perm National Research Polytechnic University (29, Komsomolsky ave., Perm, 614990, Russian Federation
2. Honourable Nicole Bills, Senior Customer Response Representative, Waka Kotahi NZ Transport Agency, Palmerston North, New Zealand.
3. Information Centre, Transport(s) Canada, Motor Vehicle Safety, Transport Canada, Government of Canada.
4. Honourable Peter, Executive Correspondence Unit, Transport Canada, Government of Canada
5. Honourable David Snelling Chartered MCIPD, Policy Team Leader, Roads Policing, Insurance and Enforcement Team; Road Safety Division, Department for Transport, United Kingdom.
6. Honourable Claire Depre, Head of Unit, Director General Mobility and Transport, Unit C.2 – Road Safety, European Commission, Brussels, Belgium.
7. Honourable Rita Saffioti MLA, Minister for Transport; Planning; Ports, Western Australia.
AND Honourable John Erceg, Managing Director of Main Roads, Western Australia.
8. Honourable Elizabeth Beecroft, Manager, Road Safety Unit, Department of Highways and Public Works, Government of Yukon, Government of Canada.
9. Honourable James Gibson, Executive Director, Road Safety GB, United Kingdom.
10. Honourable Riikka Rajamäki, Special Adviser, Finnish Transport and Communication Agency, Finland.

AND

Honourable Inkeri Parkkari , Leading expert , Finnish Transport and Communication Agency, Finland.
11. Honourable Owen Smith, Corporate Reputation, Driver and Vehicle Standards Agency (DVSA), United Kingdom Department for Transport.
12. Honourable Terence Bendixson OBE, President Emeritus, Living Streets - the United Kingdom Pedestrians Association.
13. Honourable Kristin Blank, Communications Specialist, University of North Carolina Highway Safety Research Center, United States of America.
Honourable Kristin Blank, Pedestrian and Bicycle Information Center, Communications Manager
14. Dipl.-Ing. Jorg Ortlepp, Head of Transport Infrastructure Accident research by insurers, GDV – General Association of German Insurance Industry e.V.

15. Honourable Bas Janssen, Senior advisor Traffic Safety, Directorate-General for Public Works and Water Management (Dutch: Rijkswaterstaat), Netherlands.
16. Honourable Margrét Birna Björnsdóttir, Officer of Drivers Education, Icelandic Transport Authority, Iceland.
17. Honourable Professor Dr. Hassan Shirvani, Professor of Engineering Design & Simulation, Director of EAST Research Group, Director of Research EBE, Department of Engineering and the Built Environment, Anglia Ruskin University (ARU), United Kingdom
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19. (i) Honourable Professor Abdurakhmanov Odil Kalandarovich, Rector, Tashkent State Transport University, Uzbekistan.
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(ii) Honourable Professor Shaumarov Said Sanatovich, Vice-Rector for Research and Innovation, Tashkent State Transport University, Uzbekistan.
Qualification: Doctor of Engineering (DSc)
(iii) Honourable Professor U.A. Abdurazzokov, Head of Department of Vehicle Engineering, Tashkent State Transport University, Uzbekistan.
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20. Honourable Frances Sasvari, Acting Assistant Deputy Minister and Superintendent of Motor Vehicles RoadSafetyBC, British Columbia, Canada.

And

Honourable Rob Fleming, Minister of Transportation and Infrastructure, British Columbia, Canada.
21. Honourable Mike Farnworth, Minister of Public Safety and Solicitor General, British Columbia, Canada.

And

Honourable Courtney B. Fair Practices Advisor, ICBC, North Vancouver, British Columbia, Canada.
22. Honourable Par Bjorckebaum, Business Area Manager, Autoliv, Sweden.
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25. Honourable Jim Dickinson, Global Sales Manager, Reacton Fire Suppression, United Kingdom.

26. Honourable Florian Peters, Director Business Development, Protecfire GmbH, Germany.
27. Honourable Public Liaison Team, Driver and Vehicle Standards Agency, Nottingham, United Kingdom.
28. Honourable Sandra Forde, Road Safety Division, Department for Transport, London, United Kingdom.
29. Honourable team of International Vehicle Standards, Department for Transport, London, United Kingdom.
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31. Honourable Wenjing, VANTRUE, China.
32. Honourable Daniel JOYEUX, Président, Groupe Efectis (It is the largest European network of fire research institutes), Efectis Headquarter, Saint-Aubin, France.
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34. Honourable David Murhan, Sales and Marketing Manager, **Blazecut** (Leaders in Fire Suppression Technology), Global head office in Sydney, Australia, and manufacturing facility in Slovakia, Central Europe and worldwide.
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And (ii) Honourable Taavi Tonts, Lead engineer (road pavements and TA bulk materials e-way sheet project manager), road maintenance management department, Estonian Transport Administration, Tallinn, Estonia.
36. Honourable Etienne Krug, MD, MPH, Director Social Determinants of Health, World Health Organization, Switzerland.
37. Honourable Erin Russell, Director of Policy, Programs and Regulation, Corporate Services Division, Manitoba Transportation and Infrastructure, Manitoba, Canada.
38. Honourable Sarah Thiele, Deputy Minister of Transportation and Infrastructure, Manitoba, Canada.
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41. Honourable George Georgiadis, Secretary, Inland Transport Committee, United Nations Economic Commission for Europe (UNECE) Sustainable Transport Division, Switzerland.
42. Honourable Giovanni Piglionica, Sales Department, CAMEA, Czech.
CAMEA company provides intelligent solutions in transportation and industry.
43. Honourable David M. Malone, Rector of the United Nations University in Japan, Under-Secretary-General of the United Nations

44. Honourable François E. Guichard, Mechanical Engineer, United Nations Economic Commission for Europe (UNECE)
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46. Honourable Robin Sebille, Deputy General Secretary, PIARC (World Road Association), La Défense cedex, France.
47. Honourable Marzia Guadalupi, Programme Management Assistant, Secretariat of the Secretary General's Special Envoy for Road Safety, Office of the Under-Secretary-General & Executive Secretary
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51. International Sign Association, United States of America.
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57. Honourable Dr. Harro Stolpe, Professor for environmental technology and ecology, DIRECTOR Faculty of Civil Engineering, RUB Ruhr-University Bochum, Germany.

58. Honourable Prof. Dr hab. Piotr Tryjanowski, Faculty of Veterinary Medicine Department of Zoology, Poznan University of Life Sciences, Poland.
He is also a Hans Fisher Senior Fellow at:
Institute of Advanced Studies, Technical University of Munich, Garching, Germany & Chair of Ecoclimatology, Technical University of Munich (TUM), Freising, Germany

59. Honourable professor Dr. WEI Wei, Research Centre for Eco-Environmental Sciences, Chinese Academy of Sciences, China.

60. Honourable VEGA ORTIZ Mónica, European Agency for Safety and Health at Work (EU-OSHA).

61. Honourable Ing. Pavel Havránek, Transport Research Centre (CDV), Czech.

I am also thankful to Professor Dr. Muhammad Akram Shaikh, Director General of Pakistan Scientific and Technological Information Centre (PASTIC), Islamabad, Pakistan. He completed his PhD in computer science and technology from national public research university named Tsinghua University, China.
He allowed me to utilize the modern computer facility and conference room for research work. PASTIC works under Pakistan Science Foundation. Both government entities PAASTIC and Pakistan Science Foundation are working under the umbrella of ministry of science and technology, Islamabad, Pakistan.

3. Abstract:

The purpose of this study is to investigate the Bhara Kahu bypass road project, Islamabad, Pakistan. The carriageway is wrongly routed, poorly designed and unsafe. This project is based on inaccurate traffic study, zero transport planning and human right infringements.

Wrong route of bypass road negatively affects climate change, drainage basin hydrology, public safety, food security, health security, road safety, transmission lines corridors, water security of Rawal lake in non-monsoon season, traffic induced vibrations, institutional land use planning and negatively affects the capacity of poor sewerage infrastructure in nearest human dwellings. Overdesigning of the biggest hydraulic structure (box culvert) and overdesigning of traffic lanes at grade and unnecessary massive earth work cost a heavy loss to national exchequer. Labour safety standards are very poor in the project execution phase. The voices of major stakeholders (students) of Girls School, Girls College and Quaid-i-Azam University are deliberately ignored. Structural setback distances are not honoured in case of adjacent three educational facilities and three miscellaneous organizations are at high risk of flood because of change in drainage basin hydrology. Transportation of hazardous goods is a continuous threat for adjacent educational facilities.

A mixed-method research approach is applied to address the research question. Traffic data from toll plazas was collected and analysed. Highway Capacity Manual was consulted to calculate the capacity of the carriageway. Capacity of the existing dual carriageway route of National Highway N-75 easily meets the requirement of the capital development authority's inaccurate traffic future forecast.

The project is jointly white-collar crime of bureaucratic leadership of few Pakistani government organizations / ministries, and it does not serve the interest of people of the heavily indebted poor country, Armed forces of Pakistan and all international partners of Pakistan. Engineering solution No.1 is advised to the Government of Pakistan on a priority basis.

Keywords: Traffic study, intelligent transportation system, land use planning, safety, environment

4. Methodology:

In order to develop research monograph, both qualitative and quantitative approaches for the mentioned below primary and secondary data are applied.

- Consultations with all the stake holders including Quaid-i-Azam University students, Islamabad model school for girls (class I-VIII) and neighbouring human settlements.
- Project route visits and examination of civil structures
- Real time bypass road adjacent land use surveys
- Project route visits for the examination of ground profile elevations
- Project civil construction yards visits and batching plant visits
- Data collection in Bhara Kahu traffic problematic area, Phulgaran toll plaza, Satra mile toll plaza
- Project site interviews with labour, supervisors and engineers
- Technical assistance from miscellaneous organizations of world
- Relevant data collection from Pakistan newspapers
- Labour and equipment safety surveys on project construction sites
- Pedestrian safety surveys on project construction sites
- Vehicle driver's behaviour surveys on project construction sites
- Forest and wildlife habitat surveys
- Review of drawings, research papers, international and local legal instruments
- Internet communications on emails
- Survey of vehicle's drivers drug use/ Marijuana use

5. Salient features of Bhara Kahu bypass road project:

The salient features of Bhara Kahu bypass road project are inked below:
Project estimated cost = 7004 million = 7.004 billion Pakistani currency
Total length of carriageway = 5.4 km
At Grade Carriageway = 3.85 km
Elevated Carriageway = 1.55 km
Number of carriageway lanes = At Grade 3+3, and elevated 2+2
Number of under passes = 5
Number of hydraulic structures (culverts) = 7
Number of bridges =2
Interchange = 01 x Trumpet interchange at start point
Design speed = 80 km / hour
Number of carriageway lanes =At Grade 3 lanes+3 lanes, and elevated 2 lanes+2 lanes

6. Inaccurate traffic study:

Real time accurate traffic study is the foundation of any road / carriageway design. National Highway Authority (NHA) uses the Electronic Toll Traffic Management System (ETTM) on E75 two-lane dual carriageway at Phulgaram toll plaza, which is one of the components of intelligent transportation system (ITS) and collects precise real time data. The accuracy level of National Highway Authority's (NHA's) traffic

count data is very precise because there are three kinds of traffic counting checks at Phulgaram toll plaza located on E75 two-lane dual carriageway.

- Manual Vehicle Control (MVC)
- Auto Vehicle Control (AVC)
- Supervisor Vehicle Control (SVC)

On Sunday, December 11, 2022, I visited the Phulgaram toll plaza and honourable Touqeer Irashad, employee of National Highway Authority (NHA) shared the mentioned below traffic count data of table 1 and table 2.

Table 1: Summary of three days (72 hours) traffic counts of National Highway Authority (NHA) at Phulgaran toll plaza, year 2021

Traffic Count Location at Phulgaran toll plaza, E-75 two lane-dual carriageway (Location GPS coordinates: 33°46'47.7"N 73°15'31.0"E)

S/No.	Date	Vehicle Class -1	Vehicle Class -2	Vehicle Class -3	Vehicle Class -4	Vehicle Class -5	Total number of vehicles
1	Wednesday, December 08, 2021	6585	974	199	57	14	**7829**
2	Thursday, December 09, 2021	6775	1042	220	89	29	**8155**
3	Friday, December 10, 2021	7201	920	362	76	14	**8573**

Notes:

(i) Class-1 to Class-5 and total number of vehicles consists of traffic count in both directions i.e from Islamabad to Murree and Murree to Islamabad.

(ii) There are five different categories of vehicle classification of National Highway Authority.
Vehicle Class-1 includes car, jeeps, 4 x 4, Pickups.
Vehicle Class-2 includes wagons, hiace, mini buses.
Vehicle Class-3 includes tractor trolley, agricultural machinery.
Vehicle Class-4 includes large buses.
Vehicle Class-5 includes 2 axle /3 axle / 4 axle / 5 axle / 6 axle trucks.

Source: data provided by National Highway Authority, Pakistan.

Table 2: Summary of three days (72 hours) traffic counts of National Highway Authority (NHA) at Phulgaran toll plaza, year 2022

Traffic Count Location at Phulgaran toll plaza, E-75 two-lane dual carriageway (Location GPS coordinates: 33°46'47.7"N 73°15'31.0"E)

S/No.	Date	Vehicle Class -1	Vehicle Class -2	Vehicle Class -3	Vehicle Class -4	Vehicle Class -5	Total number of vehicles
1	Thursday, December 08, 2022	4240	1821	101	9	11	6182
2	Friday, December 09, 2022	6523	1771	176	12	21	8503
3	Saturday, December 10, 2022	6018	1305	290	20	23	7656

Notes:
(i) Class-1 to Class-5 and total number of vehicles consists of traffic count in both directions i.e from Islamabad to Murree and Murree to Islamabad.
(ii) There are five different categories of vehicle classification of National Highway Authority.
Vehicle Class-1 includes car, jeeps, 4 x 4, Pickups.
Vehicle Class-2 includes Wagons, Hiace, mini buses.
Vehicle Class-3 includes tractor trolley, agricultural machinery.
Vehicle Class-4 includes large buses.
Vehicle Class-5 includes 2 axle /3 axle / 4 axle / 5 axle / 6 axle trucks.

Source: data provided by National Highway Authority, Pakistan.

Table 3: Manual traffic counts at Satra Mile toll plaza Islamabad, National Highway N-75, year 2022

Manual traffic count on Thursday, December 08, 2022 year 2022

S/No.	Number of Cars *(minimum – maximum)*	Number of Hiaces *(minimum – maximum)*	Number of Coasters *(minimum – maximum)*	Number of trucks (2 axle /3 axle / 4 axle / 5 axle / 6 axle) *(minimum – maximum)*	Total number of vehicles *(minimum – maximum)*
1.	150-200	160-250	80 - 90	30 - 60	600 -700

Notes:
(i) The National Highway's contractor provided traffic count data.
(ii) Manual traffic count method is applied at Satra Mile toll plaza.

Table 4: Summary of three days (72 hours) traffic counts of Capital development Authority (CDA) at entrance and exit of Bhara Kahu , year 2021

S/No.	Date	**Total number of vehicles at traffic count location- 1** ***(at entrance of Bhara Kahu on both sides of two-lane dual National Highway N-75)*** **Location GPS coordinates:** 33°44'12.2"N 73°10'26.4"E	**Average Passenger car units (PCU) at traffic count location-1** ***(at entrance of Bhara Kahu on both sides of two-lane dual National Highway N-75)*** **Location GPS coordinates:** 33°44'12.2"N 73°10'26.4"E	**Total number of vehicles at traffic count location-2** ***(at exit of Bhara Kahu on both sides of two-lane dual National Highway N-75)*** **Location GPS coordinates:** 33°44'53.0"N 73°11'37.7"E	**Average Passenger car units (PCU) at traffic count location-2** ***(at exit of Bhara Kahu on both sides of two-lane dual National Highway N-75)*** **Location GPS coordinates:** 33°44'53.0"N 73°11'37.7"E
1	Sunday, December 05, 2021	62,228	**63,789**	36,139	**36,899**
2	Monday, December 06, 2021	89,227		38,779	
3	Tuesday, December 07, 2021	81,094		46,628	

Notes:

(i) Average passenger car unit (PCU) for traffic count location N0. 1 and 2 is

63,789 + 36,899 = **50,344**

(ii) In accordance with traffic study report of Bhara Kahu road bypass, there are ten different categories of vehicle classification of Capital development authority (CDA), Islamabad, Pakistan.

Vehicle Class-1 include Bikes/ Rickshaw/ Ching Chi
Vehicle Class-2 includes Cars, Jeeps, 4 x 4, Pickups.
Vehicle Class-3 includes Hiaces/ Wagons/ Suzuki Carry.
Vehicle Class-4 includes Minibuses.
Vehicle Class-5 includes Large Buses.
Vehicle Class-6 includes 2 axle trucks.
Vehicle Class-7 includes 3 axle trucks.
Vehicle Class-8 includes 4 axle trucks.
Vehicle Class-9 includes 5 axle trucks.
Vehicle Class-10 includes 6 or more axle trucks.

Data Source: Page No.8, 9, 13, 14. traffic study report of Bhara Kahu bypass, Directorate of Design and Consultancy, Engineer-in-Chief Branch, RA Bazar Rawalpindi, Revised environmental impact assessment (EIA) report, construction of Bhara Kahu bypass, Islamabad. October 2022. On line available at: website of Pakistan Environmental Protection Agency

The mentioned below phrases are reproduced from the Transportation Research Board's (TRB's) Highway Capacity Manual (HCM), which is published in United States of America and the National Academy of Sciences of United States reserved all rights. [1]

"Capacity of two-lane highway is 1,700 passenger car units per hour (pcu/h) for each direction of travel. And 3,200 passenger car units per hour (pcu/h) for both directions combined".

For 24 hours (day), the total number of passenger car units for both direction of two-lane highway is 76,800. This digit is greater than the above incorrectly inked Capital Development Authority's (CDA's) passenger car units on both traffic count locations located on two-lane dual carriageway (National Highway N-75).

Please keep in mind that our case is two-lane dual carriageway (National Highway N-75) which is double the capacity of any two-lane highway. It means that total number of passenger car units per hour (pcu/h) of existing two-lane dual carriageway (National Highway N-75) is almost double. ***(Please see the drawing in appendix II, page no.45.)***

Road capacity of two-lane dual carriageway (National Highway N-75) can easily accommodate the existing traffic volume and Capital Development Authority's (CDA's) forecasted 85,711 vehicles travel demand in 2048. This proves that there is absolutely no requirement to build the Bhara Kahu bypass road project in present scenario.

Capital Development Authority (CDA) applied the indirect manual traffic count method as inked its traffic study report. This method is inaccurate for high traffic volumes of the above inked number of vehicles mentioned in table 4.

Total traffic count on both directions of two-lane dual carriageway E-75 at Phulgaran toll plaza (GPS coordinates: 33°46'47.7"N 73°15'31.0"E) and National Highway N-75 on both directions at Satra Mile toll plaza (GPS coordinates: 33°45'53.9"N 73°13'14.9"E) are significantly smaller than the Capital Development Authority's (CDA's) traffic count on location-2 (GPS coordinates: 33°44'53.0"N 73°11'37.7"E). **It proves that Capital Development Authority's (CDA's) has inaccurate traffic study.**

Two-lane dual carriageway E-75 and National Highway N-75 meet at the location (GPS coordinates: 33°45'49.3"N 73°13'11.4"E), which is 3.07 kilometres approximately from the Capital development authority's (CDA's) traffic count location-2 (GPS coordinates: 33°44'53.0"N 73°11'37.7"E). National Highway N-75 is two-lane dual carriageway from Islamabad to Satra Mile toll plaza (GPS coordinates: 33°45'53.9"N 73°13'14.9"E), and it converges into two-lane highway from Satra Mile toll plaza to Murree.

[1] Highway Capacity Manual (HCM). 2000. Online available at: https://dokumen.tips/documents/highway-capacity-manual-2000-mster-sergio-j-navarro-capacity-manual-2000.html?page=3

7. Uneconomical and poor design features:

Wrongly routed Bhara Kahu bypass road project has uneconomical and poor design. Six significant design related features are examined below, which involve a heavy cost.

7.1 Unnecessary third traffic lane at grade:

Total width of three-lane carriageway at grade is 30.91 meters in both directions, and 15.46 meters in one direction of carriageway. Total width of right of way (ROW) is 182.88 meters in both directions. [2]

Three traffic lanes are at grade and two traffic lanes are on the elevated structure on the under construction dual carriageway of wrongly routed Bhara Kahu bypass road project. The overdesigning of traffic lanes in terms of capacity cost a significant loss to national exchequer. Why 3.85 km carriageway is designed in three traffic lanes and 1.55 km of carriageway is designed for two traffic lanes? In other words, the bypass carriageway width and road capacity is greater at grade but shorter at elevated structure, why? Why at grade segment of Bhara Kahu bypass road project is designed for larger traffic density and elevated structure for lower traffic density? These technical questions also prove that Capital Development Authority (CDA) and National Highway Authority (NHA) have not latest accurate real time data for the traffic study. Hence, there is a big question mark on this mega road project.

7.2 Unnecessary and costly earthwork:

Four underpasses are constructed on above ground, and each underpass has height of approximately 5 meters (16.4 feet) from ground level. The details are inked below:

- Underpass No.1 at chainage 2+200 (Location GPS coordinates: 33°44'39.9"N 73°10'13.0"E, ground elevation 594 meters).
- Underpass No.2 at chainage 2+650 (location GPS coordinates: 33°44'37.6"N 73°10'29.7"E, ground elevation 592 meters)
- Underpass No.3 at chainage 3+193 (location GPS coordinates: 33°44'38.6"N 73°10'50.1"E, ground elevation 587 meters)
- Underpass No.4 at chainage 3+450 (location GPS coordinates: 33°44'37.5"N 73°11'00.9"E, ground elevation 589 meters). This is very close to Islamabad Model College for Girls Bhara Kau, Islamabad.

(Please see project photos in appendix II, page no.46, 47, 48, 49 and 50)

A heavy earth filling work of three-lane dual carriageway starts from the bridge (Location GPS coordinates: 33°44'38.7"N 73°10'01.4"E) to all the above inked four underpasses. In other words, heavy earth filling work of the three-lane dual carriageway starts from the bridge located at chainage 1+900 to the underpass No.4 at chainage 3+450. Two hydraulic structures (single cell reinforced concrete box culverts) are also included in this path at the location GPS coordinates 33°44'38.3"N 73°10'45.2"E and GPS coordinates 33°44'38.1"N 73°10'37.1"E.

[2] Revised environmental impact assessment (EIA) report, construction of Bhara Kahu bypass, Islamabad. Traffic Study Report, Page No.39. October 2022. On line available at: Website of Pakistan Environmental Protection Agency

It covers approximately two kilometres and four hundred fifty meters of unnecessary and costly earth filling work (height more than 5 meters) on three-lane dual carriageway of Bhara Kahu bypass. Inadequate mechanical compaction of multiple layers of mixture of soil and miscellaneous diameter stones will create post construction settlement issues in wrongly routed dual three-lane carriageway including pavement depression, settlement cracks, uneven settlement etc.

This poor design approach tremendously increases machine hours, labour hours, construction cost, future maintenance cost and compromised the safety of nearest educational institutes.

In order to collect thousands of cubic meters soil for earth filling work of three-lane dual carriageway, Capital development authority (CDA) is intentionally destroyed the natural terrain and vegetation at the mentioned below locations, and damaged the drainage basin hydrology of the all area.

- **Premises of Quaid-i-Azam University, Islamabad (Location GPS coordinates: 33°44'47.3"N 73°09'57.8"E)**

  Unlawfully, more than 44, 160 square meters area is deeply excavated to collect the soil for three-lane dual carriageway. In addition, a rain water / storm water tributary is also blocked (filled with soil) the Capital Development Authority's (CDA's) main contractor (National Logistics Cell) at the location (GPS coordinates: 33°44'43.7"N 73°09'59.5"E) near newly under constructed bridge at Kiani road. National Logistics Cell (NLC) is working under the umbrella of Ministry of Planning, Development & Special Initiative, Pakistan.

  These all unlawful and non-environmental friendly activities generate high risk of flood to the nearest educational buildings of National Centre for Physics (Location GPS coordinates: 33°44'59.6"N 73°09'50.2"E), National Institute of Vacuum Science and Technology (Location GPS coordinates: 33°44'59.2"N 73°10'00.6"E) and Pakistan institute of additive manufacturing in a monsoon season or heavy rain conditions.

- **Premises of Quaid-i-Azam University, Islamabad (Location GPS coordinates: 33°44'41.0"N 73°09'51.4"E)**

  Unlawfully, extremely deep excavation is carried out in a large area to collect the soil for three-lane dual carriageway. In post- construction settlement of pavement of wrongly routed three-lane dual carriageway, this particular road section will be damaged, and will demand high maintenance work because of deep excavation. ***(Please see project photo in appendix II, page no 51.)***

- Two rain water / storm water tributaries are passing under the boundary wall of Quaid-i-Azam University at a distance of 47 meters (Location GPS coordinates: 33°44'19.6"N 73°09'17.2"E) and 110 meters (Location GPS coordinates: 33°44'17.9"N 73°09'18.6"E) respectively from the three-lane dual carriageway of chainage 0+575. The above inked two rain water / storm water tributaries converges into one rain water / storm water tributary and continues its flow towards Korang river and Rawal Lake via single box culvert located (Location GPS coordinates: 33°44'04.5"N 73°09'23.5"E) at National Highway N-75. Rawal Lake is the water reservoir which serves the needs of water for both cities of Rawalpindi and Islamabad. Capital Development Authority's (CDA's) main contractor (National Logistics Cell) blocked (filled with soil) the above inked both rain water /

storm water streams and destroyed drainage basin hydrology of large surrounding area near the boundary wall of Quaid-i-Azam, University. This unnecessary and deliberate natural terrain damage including significant ground elevation changes and vegetation cover removal will generate the phenomenon of storm water back flow in the hydraulic structure of double pipe reinforced concrete pipe culvert at chainage 0+725 (location GPS coordinates: 33°44'26.9"N 73°09'20.1"E) which serves the above inked two rain water / storm water tributaries. In addition, unnecessary deep excavation changes in drainage basin hydrology significantly reduce the water flow towards Rawal Lake in normal rain days.

- A large area of natural terrain is destroyed for soil collection purpose from chainage 0+575 to the start point of trumpet interchange on both directions of the three-lane dual carriage way of Bhara Kahu bypass road project. Similarly, a deep excavation is carried out on many places (Location GPS coordinates: 33°44'38.8"N 73°10'08.7"E) in Kot hathyal area near three-lane dual carriage way. In a monsoon season, the rain water / storm water will accumulate in these deep pits. The nearest human settlements and Islamabad model school for girls (class I-VIII) Kot hathyal children will highly effect from vector borne diseases including mosquito-borne diseases.

This environmental sabotage approach will negatively impact the water drainage patterns from the foothills of Margalla hills and mountainous terrain of Quaid-i-Azam University in monsoon and heavy rain times.

Instead of doing the above inked costly earth filling work for wrongly routed Bhara Kahu bypass road project, the designer company can construct a simple low cost ramp for flyover from the convergence point (chainage:3+800 and Location GPS coordinates: 33°44'38.7"N 73°11'14.3"E) of three-lane dual carriageway and National Highway N-75 to the underpass No.4 at chainage 3+450 (location GPS coordinates: 33°44'37.5"N 73°11'00.9"E, ground elevation 589 meters). This cost effective design approach will save the significant money of national exchequer of Pakistan.

Ground elevation of newly under constructed three-lane dual carriageway will be much higher than nearest human settlements and Islamabad model school for girls (class I-VIII) Kot hathyal, Bhara Kahu and Islamabad Model College for Girls Bhara Kau. So, it is obvious that this uneconomical and poor design practice will generate severe problems of storm water and rain water drainage. In addition, it will damage to nearest multi storied civil structures.

More than 5 meters (16.4 feet) height of earth filling is required on both direction of newly under constructed three-lane dual carriageway on approximately two kilometres and four hundred fifty meters road segment. The total width of three-lane dual carriageway is 30.91 meters (101.9 feet) in both directions. As earlier mentioned, the total width of right of way (ROW) is 182.88 meters in both directions. Apply volume formula *(soil volume= length x width x height)*; we can easily calculate the soil volume in cubic meters. An unnecessary costly earth filling work is the result of poor three-lane dual carriageway design.

Desired passes to compact the soil require vibratory rollers, and water curing require water tankers. Soil density is also needed to test on construction site. A large number of soil loaded trucks are involved in earthwork. We can calculate the number of trucks in the following way.

Number of trucks = compacted volume (in cubic metres) / volume of truck (in cubic metres)
Here, the question arises that why the cost effective method of excavation was not applied? Excavation of underpass consumes significantly less machine hours, man hours and construction cost. It proves that ground elevation profile of the three-lane dual carriage way was inaccurately field surveyed to design the wrongly routed Bhara Kahu bypass road project.

7.3 Over designed hydraulic structure:

There are seven hydraulic structures (culverts) are constructed for the Bhara Kahu bypass road project. The details are inked below:

- Single cell reinforced concrete box culvert at chainage 0+40
- Single cell reinforced concrete box culvert at chainage 0+185
- Double cell reinforced concrete box culvert at chainage 0+425
- Double pipe reinforced concrete box culvert at chainage 0+725
- Four cell reinforced concrete box culvert at chainage 1+500
- Single cell reinforced concrete box culvert at chainage 2+800
- Single cell reinforced concrete box culvert at chainage 3+600

Four cell reinforced concrete box culvert is under construction at the chainage 1+500 and its location GPS coordinates are 33°44'38.4"N 73°09'45.2"E. We name it HSC-5 for identification. The hydraulic structure of the four cell box culvert is over designed in terms of cross sectional area, water capacity and headwater depth at peak storm water conditions. This is again a heavy loss to the national exchequer of Pakistan.
(Please see project photo in appendix II, page no. 52)
If we study the rain water / storm water tributary where the above inked four cell hydraulic structure is under construction, we find mentioned below details.
This rain water / storm water tributary originates from the foot hills of Margllah at location GPS coordinates 33°45'45.0"N 73°09'39.0"E and ground elevation 641 meters. After covering the approximately 1.64 kilometres distance, the above inked rain water / storm water tributary crosses the shah dara minor road at the location GPS coordinates 33°45'08.3"N 73°09'41.5"E and ground elevation 603 meters. At point of crossing an old hydraulic structure of three cell box culvert is existed. We name it HSC-1 for identification. The rain water tributary follows the principal of gravity and continues its journey and crosses the minor road in front of National Centre for Physics at location GPS coordinates 33°45'01.7"N 73°09'41.6"E and ground elevation 599 meters. At point of crossing an old hydraulic structure of three cell box culvert is existed. We name it HSC-2 for identification. The distance between two old existing hydraulic structures (HSC-1 and HSC-2) is 347.02 meters. The rain water / storm water tributary continues its flow and again crosses a minor road at location GPS coordinates 33°44'56.5"N 73°09'40.2"E and ground elevation 596 meters. At point of crossing an old hydraulic structure of single cell box culvert is existed. We name it HSC-3 for identification. The distance between two old existing hydraulic structures (HSC-2 and HSC-3) is 195.54 meters.
The rain water / storm water tributary further covers the distance of 673.77 meters and crosses the Kiani minor road at location GPS coordinates 33°44'40.8"N 73°09'44.2"E and ground elevation 588 meters. At point of crossing on Kiani road an old hydraulic structure of multi reinforced concrete pipe culvert is already existed. This culvert

consists of eleven pipes and each pipe has diameter 24 inches. We name it HSC-4 for identification. The distance between multi reinforced concrete pipe culvert (HSC-4) and newly under constructed and over-designed four cell reinforced concrete box culvert is approximately 62 meters. The rain water / storm water tributary continue its flow and falls in Korang river at location 33°43'30.8"N 73°10'38.2"E and this river falls in Rawal lake at location 33°43'09.8"N 73°08'42.7"E.

Now, we write the hydraulic structures of the above discussed rain water tributary in descending order in terms of cross sectional area, water capacity and headwater depth.

HSC-5 at location GPS coordinates: 33°44'38.4"N 73°09'45.2"E
HSC-2 at location GPS coordinates: 33°45'01.7"N 73°09'41.6"E
HSC-1 at location GPS coordinates: 33°45'08.3"N 73°09'41.5"E
HSC-4 at location GPS coordinates: 33°44'40.8"N 73°09'44.2"E
HSC-3 at location GPS coordinates: 33°44'56.5"N 73°09'40.3"E

Each cell of four cell reinforced concrete box culvert (HSC-5) has four meters width and four meters height. The total width of box culvert (HSC-5) is 16 meters and height is four meters excluding the thickness of walls. The total cross sectional area is of box culvert (HSC-5) is 64 square meters which is overdesigned and not needed at peak storm water conditions. Only two cells of box culvert (HSC-5) are absolutely enough, if we consider the previous existing hydraulic structures of culverts on the rain water tributary. In other words, cross sectional area of 32 square meters can easily handle the water flow at peak storm water conditions.

7.4 Electromagnetic radiation of high voltage overhead power transmission line:

Old existing overhead high voltage transmission line of 220 kilovolts (220000 volts) is perpendicularly crossing the newly under constructed three-lane dual carriage way at the chainage 0+185 (Location GPS coordinates: 33°44'08.7"N 73°09'16.5"E).

(Please see project photo in appendix II, page no. 53)

The vertical distance from the 220 kilovolt overhead electric transmission line can be easily and precisely calculated from the surveying equipment “Total Station”. The vertical distance from the 220 kilovolt overhead high voltage transmission line to three-lane dual carriage way is about 10 to 11 meters. This vertical distance is very low and unsafe for all class of miscellaneous vehicles including military vehicles, and this unsafe zone of three-lane dual carriage way consists of dangerous electromagnetic radiations. The minimum safe vertical distance from 220 kilo volts (220000 volts) overhead electric power transmission is about 12 meters.

There are three types of electromagnetic radiation hazards in the hazardous area of three-lane dual carriageway located at the chainage 0+185.

Electromagnetic radiation to personnel
Electromagnetic radiation to ordnance
Electromagnetic radiation to fuel

The potential for electromagnetic radiation to cause ignition or detonation of ordnance and volatile fuels is obvious. Therefore Pakistan armed forces vehicles loaded with ordnance and all vehicles loaded with volatile fuels are at high risk at the chainage 0+185. In addition, the adverse impacts on human health of vehicle drivers and passengers include Deoxyribonucleic acid (DNA) damage, cancer etc.

Bypass road chainage 0+185 is hardly 1.5 to 1.7 kilometres if we follow the 220 kilovolt transmission line corridor from the University Islamabad 220 kilovolts Grid Station (Location GPS coordinates 33°44'16.0"N 73°10'01.6"E), Bhara Kahu, Islamabad. National Logistics Cell (NLC) constructed the single cell reinforced concrete box culvert in the 220 kilovolts transmission line corridor, and it is dangerously close to 220 kilovolts transmission line tower.
The 220 kilovolts transmission line corridor and the Grid Station fall in the scope of National Transmission & Despatch Company (NTDC) under ministry of Energy (Power Division), Pakistan. Here, the question arises that why the senior management of National Transmission & Despatch Company (NTDC) and above inked Grid Station criminally neglected and allowed to Capital Development Authority (CDA) to construct the dual carriageway in the area of 220 kilovolts transmission line corridor? If ordnance or fuel transporting vehicle get explosion because of electromagnetic radiation, the National Transmission & Despatch Company (NTDC) will be responsible for human losses.

7.5 Infringement of low voltage overhead power transmission line corridor:

Wrongly routed three-lane dual carriage way of Bhara Kahu bypass road project violating the old existing overhead transmission lines corridor of five low voltage overhead power transmission lines at chainage 1+525 (Location GPS coordinates: 33°44'38.2"N 73°09'50.1"E). These overhead transmission lines have low height and needs to remove for the safety of public. In Pakistan, passengers sometimes sit on the roof of buses. Similarly, nonstandard heights of vehicles and trucks are also the part of transportation sector. You can easily find these unsafe road practices on the roads of Pakistan. If any accident / human losses occur in the above inked low voltage transmission line corridor, senior management of Islamabad Electric Supply Company (IESCO) will be responsible for this.

7.6 Unsafe design speed:

Design speed of old existing National Highway N-75 is 60 km/hour [3] while the design speed of newly under constructed wrongly routed Bhara Kahu bypass dual carriageway is 80km/hour.[4] Design speed of dual carriageway should be a logical one with respect to adjacent land use,[5,6] which is not logical in the case of wrongly routed

[3] Page No.24, Consultancy services for feasibility study and detailed design for construction of 4 – lane flyover at Bara – Kahu (n–75).Environmental Impact Assessment (EIA) report. July 2020. Client: National Highway Authority (NHA). On line available at: Pakistan Environmental Protection Agency's website
[4] Page No.38. Revised environmental impact assessment (EIA) report, construction of Bhara Kahu bypass, Islamabad. October 2022. On line available at: https://environment.gov.pk/SiteImage/Misc/files/EIA%20Reports/Bharakaho%20Bypass/Bhara%20Kahu%20Bypass.pdf
[5] Page No.67. A Policy On Geometric Design Of Highways And Streets 2001. American Association of State Highway and Transportation Officials. Fourth Edition.

[6] Chapter 3 Geometric Design, Page No.3-4. Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (Commonly known as the "Florida Greenbook").

Bhara Kahu bypass road. In addition, present and future adjacent land use has intentionally ignored in the calculation of safe design speed of wrongly routed Bhara Kahu bypass dual carriageway. Higher vehicle speeds will be induced higher traffic vibrations in adjacent structures or buildings.

Real-time adjacent land use field survey show the inked below three types of adjacent land uses along both directions of wrongly Bhara Kahu bypass dual carriageway. These land uses has intentionally ignored and voices of the major stakeholder's adjacent to newly under construction dual carriageway are not honoured.

- Institutional land use
- residential land use
- commercial land use

If some higher speed (40km/hour- 80km/hour) vehicle of miscellaneous class fails its brakes or get crash because of mechanical failure or some any other reason near the above-inked are of three type of land uses, the impact intensity of vehicle will be severe because of higher speed and extremely higher elevation of dual carriageway at grade and flyover. The human losses will be higher particularly in case of zero setback distance-based and structurally weak Islamabad model school for girls (class I-VIII). Same scenario can be happen in case of Islamabad Model College for Girls Bhara Kau, Islamabad and commercial area located adjacent to flyover of newly constructed Bhara Kahu bypass dual carriageway. Setback distances for 1.55 km of newly under construction elevated two-lane dual carriageway are dangerously close to multistoried buildings of commercial area and it is unsafe for both miscellaneous class of high speed vehicles and adjacent structures.

Wrongly routed Bhara Kahu bypass dual carriageway divides the Quaid-i-Azam University's Institutional land into two unsafe adjacent institutional land zones. Future adjacent land use has not given significance in case of the Quaid-i-Azam University. Presently, the residents of highly respectable professor's residential colony (GPS location: 33°44'32.3"N 73°09'34.4"E) of Quaid-i-Azam University located near Shahdara minor road is at high risk in case of fuel tanker explosion or accident of any hazardous/dangerous goods vehicle. In addition, induced traffic vibrations will badly affect the health of highly respected professors and their families.

In the view of all above, it all proves that geometric design of Bhara Kahu bypass dual carriageway is unsafe for all class of miscellaneous vehicles. Design speed is one of the features of road geometric design.

Enforcement of speed limit of 30 km/hour is safe for the newly constructed wrongly routed Bhara Kahu bypass dual carriageway, if we consider and respect the adjacent land use. Only 11 minutes will be required to cover the distance of 5.4 kilometres of Bhara Kahu bypass dual carriageway. There is only one-minute (sixty seconds) vehicle travel time difference between the miscellaneous class of vehicles travelling on wrongly routed Bhara Kahu bypass dual carriageway and the forthcoming recommendation No. (xii) of Engineering Solution No.1 (Page No.30) for the old existing two-lane dual carriageway (National Highway N-75).

Topic # 625-000-015.State of Florida Department of Transportation.
May 2007, Edition

In order to save only one minute of vehicle travel time, the execution of the public sector development project of 7004 million (7.004 billion) Pakistani Rupees is massive wastage of public funds and highly questionable in heavily indebted country of Pakistan.

8. Land use planning and environmental issue are ignored:

Capital Development Authority (CDA) not only destroyed the natural habitat on its land but also same environmental sabotage is committed on the institutional land of Quaid-i-Azam University, Islamabad, Pakistan. Capital Development Authority (CDA) destroyed a valuable forest for the construction of trumpet interchange at the start point of Bhara Kahu bypass road project. ***(Please see project photos in appendix II, page no.54, 55, 56 and 57)***

Capital Development Authority (CDA) is a government organization. Therefore, its land belongs to people of Islamabad and people of Pakistan. Capital Development Authority's (CDA) unplanned land use policy is generating multiple problems for the local residents of Bhara Kahu and people of Islamabad.

Trees reduce greenhouse gases and help to tackle climate change. The wrong route of Bhara Kahu bypass road project consumes all the green area (including vegetation, trees and agriculture land) of densely populated residential area of Bhara Kahu, Islamabad. ***(Please see the satellite image of Bhara Kahu bypass road project route of Capital Development Authority in appendix II, page no.58)***

The above inked project compromises the health security of Bhara Kahu residents and the residents of Islamabad Capital Territory residents (ICT). According to the United Nations' Global Forest Goals Report 2021, 75% of emerging Infectious diseases are zoonotic, and usually occur when natural landscapes like forests are cleared. [7]

According to the United Nations, Climate Change is a shared and global responsibility, and climate change is recognized as a most serious threat facing humanity. [8] In this context, the role of Pakistan Environmental Protection Agency (PEPA) and Capital Development Authority (CDA), Islamabad, Pakistan is highly questionable.

Pakistan Environmental Protection Agency (PEPA) did not learn any lesson from the recent climate change events in Pakistan, and increased air pollution (smog) levels in Karachi, Lahore, Rawalpindi (neighbouring city of Islamabad) and many parts of Punjab province.1,739 people loss lives from June 14 to October 2022 in Pakistani floods. Flood damages and economic losses are over USD 30 billion in accordance

[7] The Global Forest Goals Report 2021. Department of Economic and Social Affairs, United Nations. Page No.2 On line available at: https://www.un.org/esa/forests/wp-content/uploads/2021/08/Global-Forest-Goals-Report-2021.pdf

[8] Confronting Climate Change: A Shared And Global Responsibility, United Nations. On line available at: https://www.un.org/en/chronicle/article/confronting-climate-change-shared-and-global-responsibility

with World Bank. [9] On December 7, 2022, government of Punjab announced environmental emergency in many parts of Punjab because of heavy smog. [10]

Pakistan Environmental Protection Agency (PEPA) gravely violated and absolutely ignored the principles of land use planning in the case of Bhara Kahu bypass road project, and issued approval to execute the above inked project. Pakistan Environmental Protection Agency's (PEPA) approval is naked infringement of United Nations Framework Convention on Climate Change, Kyoto protocol to the United Nations framework convention on climate change, Paris Agreement, and the United Nations Global Forest Goals. Pakistan Environmental Protection Agency's (PEPA) also not honour the mentioned below United Nation's Sustainable Development Goals in the approval of Environmental Impact Assessment (EIA) report of Bhara Kahu bypass road project.

(i) United Nation's Sustainable Development Goal (SDG) No. 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

(ii) United Nation's Sustainable Development Goal (SDG) No. 13: Take urgent action to combat climate change and its impacts.

Over 1991-2010 temperature across the Islamabad Capital Territory is doubled, and it is expected to increase and become more variable. Islamabad is also exposed to the extreme climate weather. [11] Land use planning is a key instrument to combat climate change. [12]

Land use planning plays a pivotal role in country's economy. Land use planning contributes the United Nation's sustainable development goals. As per Global Hunger Index in 2021, Pakistan ranked 92nd out of 116 countries. [13] 14.6 million people are food-insecure in Pakistan and 9.1 million people are facing poverty in accordance with World Food Programme (WFP), Pakistan Country Brief, October 2022. [14] ***(Please see project photo in appendix II, page no.59)***

Food insecurity is rising in Pakistan. Wrong land use planning also affects the food security and climate change in a negative way, and the same practice is following the Capital Development Authority (CDA) in the execution of Bhara Kahu bypass road project.

On October 2022, Zeeruk International Pvt.Ltd prepared the revised Environmental Impact Assessment (EIA) report for the construction of Bhara Kahu bypass, Islamabad. This report was prepared for the Capital Development Authority (CDA)

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[9] Pakistan: Flood Damages and Economic Losses over USD 30 billion and Reconstruction Needs over USD 16 billion - New Assessment. Press release, October 28, 2022, Online available at: official website of world bank

[10] Calamitous smog puts Punjab on high alert. Dawn (Pakistani newspaper). December 7, 2022. Online available at: https://www.dawn.com/news/1725104

[11] Cities and Climate Change Initiative, Abridged report, Islamabad Pakistan Climate Change Vulnerability Assessment, United Nations Human Settlements Programme (UN-Habitat). Page No.7 and Page No.10.On line available at : UN-Habitat

[12] Land-use planning for REDD+, Food and Agriculture organization of United Nations. On line available at: https://www.fao.org/3/CA0827EN/ca0827en.pdf

[13] Dawn, Pakistani newspaper. August 17, 2022. On line available at : https://www.dawn.com/news/1705252

[14] World Food Programme, WFP Pakistan Country Brief, October 2022. On line available at: https://www.wfp.org/countries/pakistan

and Pakistan Environmental Protection Agency (PEPA) approved this incorrect report. Capital Development Authority (CDA) admits the **"unplanned land uses"** in Islamabad Capital Territory (ICT) in this Environmental Impact Assessment (EIA) report. [15] Unplanned land uses is also associated with wrong land uses.

There is no bypass road in the Master Plan of Islamabad but unlawfully the Capital Development Authority (CDA) followed the strategy of **"unplanned land use or wrong land use"** in the construction of Bhara Kahu bypass road. ***(Please see the master plan of Islamabad in appendix II, page no.60)***

There are seven types of land use planning mentioned below, and Capital Development Authority (CDA) needs to follow the philosophy of land use planning in the development of Islamabad Capital Territory (ICT). Same philosophy needed to adopt in other cities of Pakistan.

(i) Residential **(ii)** Commercial **(iii)** Industrial **(iv)** Institutional **(v)** Agricultural / Forestry **(vi)** Transportation **(vii)** Parks / Green Spaces **(viii)** recreation / tourism.

Universities, schools, colleges, libraries, hospitals, government offices etc. fall in the scope of Institutional land use. Construction of wrongly routed Bhara Kahu bypass road project in the land area of Quaid-i-Azam University, Islamabad, Pakistan is a naked conflict to the land use planning in Islamabad Capital Territory (ICT). Land area of Quaid-i-Azam University, Islamabad, Pakistan falls in the type of Institutional land use.

Capital Development Authority (CDA) occupies 600 kanals of Quaid-i-Azam University land for the wrongly routed Bhara Kahu bypass road project, which is a naked violation of land use in urban development. [16]

Capital Development Authority (CDA) needs to get lessons from the first and founding vice chancellor of Gomal University, honourable Nawab Allah Nawaz Khan Saddozai of Dera Ismail Khan, KPK who donated the 11000 kanal of its land to the government of Pakistan for the establishment of Gomal University Dera Ismail Khan. Citizen of Pakistan, honourable Nawab Allah Nawaz Khan Saddozai gifts its land for institutional land use in case of Gomal University while government entity Capital Development Authority (CDA) grabs the Institutional land in case of Quaid-i-Azam University. This is highly condemnable and shameful act of Capital Development Authority (CDA) and demanded to be reversed.

The population of Pakistan is 224.78 million, [17] and it is further growing. The same scenario is also observed in Islamabad Capital Territory (ICT). If we see the developed countries, land use planning plays a pivotal role to meet the nation's present and future demands in miscellaneous sector of economy. European Union countries, Japan, Russian Federation, United States of America, United Kingdom, Canada,

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[15] List of figures, Figure 1: Master Plan of Islamabad Highlighting Bhara Kahu, Page No.1. Revised environmental impact assessment (EIA) report, construction of Bhara Kahu bypass, Islamabad. October 2022. On line available at: https://environment.gov.pk/SiteImage/Misc/files/EIA%20Reports/Bharakaho%20Bypass/Bhara%20Kahu%20Bypass.pdf

[16] Joint Action Committee QAU releases fact sheet on land & Bhara Kahu Bypass issue, Daily Times (Pakistani newspaper), December 5, 2022. On line available at: https://dailytimes.com.pk/1035729/joint-action-committee-qau-releases-fact-sheet-on-land-bhara-kahu-bypass-issue/

[17] Pakistan economic survey 2021-22. Finance division, Government of Pakistan. Online available at: https://www.finance.gov.pk/survey/chapter_22/Overview.pdf

China, United Arab Emirates, Uzbekistan, Ukraine, Australia, New Zealand, Belarus and Azerbaijan are applying the smart and efficient land use strategy in all types of land use planning including residential land use and transportation land use. Vertical housing and elevated roadways are the smart and highly efficient method of residential land use and transportation land use respectively.

Russia and Canada rank first and second in terms of land resources in the world, and both countries have lower population than Pakistan. Despite this, both countries are pursing the projects of vertical housing and elevated roadways for sustainable urban development in densely populated areas. Pakistan is the fifth populous country in the world and has limited land resources. That's why land use planning is highly required to enhance the economic growth of heavily indebted country of Pakistan.

9. Wrong Land Use and deliberate dishonour of International Partner:

On the basis of Document of Understanding, Chinese Academy of Sciences and Higher Education Commission of Pakistan mutually agreed to establish China-Pakistan Joint Research Centre on Earth Sciences in Pakistan. Quaid-i-Azam University (QAU), Islamabad donated 50 acres of Institutional land. Construction of wrongly routed dual carriageway of Bhara Kahu bypass road project passes in the mutually agreed future construction site of institutional land of China-Pakistan Joint Research Centre on Earth Sciences (Location GPS coordinates: 33°44'25.1"N 73°09'18.5"E) located in Quaid-i-Azam University (QAU).

The above inked Joint Research Centre site was jointly visited both Chinese and Pakistanis professors, and mutually agreed the site for research facility construction. Chinese are very friendly and competent people because I had some professional experience to work with Chinese engineers in China Petroleum Engineering and Construction Corporation.

In order to land use change for the construction of wrongly routed Bhara Kahu bypass road project, Capital Development Authority (CDA) absolutely ignored and not taken the valuable approval of the two major stake holders (university students) and major project funder (Government of China) of China-Pakistan Joint Research Centre on Earth Sciences. Conversion of Institutional Land Use to Transportation Land Use is wrong land use practice, and generate multiple problems.

On Wednesday, November 23, 2022, honourable Assistant Professor Dr. Fouzia Farooq Ahmed also inked serious concerns about major stake holders (Quaid-i-Azam University students) and right of education which is enshrined in article 26 of the universal declaration of human rights and United Nations sustainable development goal (SDG) No.4, in her letter to honourable Ms. Rabiya Javeri Agha, Chairperson of National Commission for Human Rights (NCHR) of Pakistan. Her academic qualification is post doctorate from (OCIS), University of Oxford, United Kingdom. Presently, she is employed in department of history, Quaid-i-Azam University. On Friday, January 20, 2023, I visited to honourable Dr. Fouzia Farooq Ahmed and she handed over the hard copy of signed letter to me. ***(Please see scanned signed copy of letter in appendix II, page no.61)***

The fact is this that Construction of Bhara Kahu bypass road project continues in Quaid-i-Azam University area. There is no approval document available about two

major stake holders (Quaid-i-Azam University students) and major project funder (Government of China) in Environmental Impact Assessment (EIA) report of Bhara Kahu by pass road project. Capital Development Authority (CDA), Islamabad infringes the basic norms of international relations, basic principles of moral philosophy and future land use in case of our friendly and academically highly qualified Chinese Partners. This is considered highly shameful act of Capital Development Authority (CDA) in international relation practices.

The Central Development Working Party (CDWP) of Planning Commission of Pakistan has already approved the PC-I of the China-Pakistan Joint Research Centre on Earth Sciences at project cost Rs. 7.397 Billion (Pakistani currency) in accordance with the press information department, ministry of information and broadcasting, government of Pakistan.[18] On ground, still there are absolutely no signs of construction.

On Thursday, January 19, 2023, I visited to honourable Assistant Professor, Dr. Anees Ahmad Bangash. He is working in Faculty of Earth Sciences, Quaid-i-Azam University (QAU), Islamabad. He divulged the salient features of the above inked Joint Research Centre, and told that Government of China is committed to provide the high cost sophisticated equipment and technical expertise for the above inked research project. The above inked Joint Research Centre will work in four areas of research. [19]

(i) Natural Disasters and Risk Management

- Earthquake disasters
- Mountain disasters
- Meteorological disasters
- Marine disasters
- Paleoenvironmental disasters
- Disaster reduction of major projects

(ii) Deep Sphere Interaction from Ocean Subduction to Continental Collision

- Continental collision of the western tectonic knot and its environmental effects
- Sea-land interactions in the Mokran subduction zone
- Deep sphere interaction and resource effect

(iii) Climate Change and Environmental Effect

- Climate change and westerlies-monsoon interaction
- Cold region hydrology
- Ecological evolution
- Cryosphere evolution and environmental effects
- Marine environment and climate change

(iv) Resources Environment and Green Development

- Sustainable use of resources
- Regional green development
- Drought and desertification

[18] PR No. 51, Islamabad: Press Information department, Ministry of Information and Broadcasting, Government of Pakistan. October 06, 2022. Online available at: http://pid.gov.pk/site/press_detail/21029

[19] China-Pakistan Joint Research Center on Earth Sciences. Research Fields. Online available at: http://cpjrc.imde.ac.cn/en/sr/rf/

10. **Transportation of dangerous goods / hazardous goods:**

Mostly government motor vehicle examiners in Pakistan are not mechanical engineers. This is the naked violation of Pakistan Engineering Council Act, 1976 and human rights related article 18 of the constitution of Pakistan. In addition, government of Pakistan lacks in light and heavy vehicle inspection facilities. For example, Islamabad Excise department has not any kind of calibrated equipment for inspection of vehicles, and constitutionally unauthorized persons (non-engineers) are involved in vehicle inspection activities. Same situation is observed in other parts of the country. Vehicle fitness testing / certification are not as per engineering norms and international norms in Pakistan. Anyone can observe many unfit and unsafe vehicles on the roads of Pakistan.

It is inked that government of Pakistan is not the contracting party to European agreement concerning the international carriage of dangerous goods by road (Accord Dangereux Routier, ADR). [20] So, our roadways are not safe for all road users. It is proposed to government of Pakistan that quickly prepare necessary documentation to join the ADR treaty.

The classes of dangerous goods according to ADR are the following: [21]

Class 1 Explosive substances and articles
Class 2 Gases
Class 3 Flammable liquids
Class 4.1 Flammable solids, self-reactive substances and solid desensitized explosives
Class 4.2 Substances liable to spontaneous combustion
Class 4.3 Substances which, in contact with water, emit flammable gases
Class 5.1 Oxidizing substances
Class 5.2 Organic peroxides
Class 6.1 Toxic substances
Class 6.2 Infectious substances
Class 7 Radioactive material
Class 8 Corrosive substances
Class 9 Miscellaneous dangerous substances and articles

Pakistani vehicle drivers for transportation of dangerous goods / Hazardous goods don't have transport emergency cards, and have not certified/ trained in the any of the above inked classes of dangerous goods. It also proves that the vehicle drivers are unaware about safety protocols in case of toxic gases leakage, acid leakage or other some dangerous events. Many Pakistani drivers for dangerous goods cannot read or write.

Bulk liquefied petroleum gas TT can cover the blast affected area more than 200 meters radius or more. [22, 23] It depends upon the storage quantity of liquefied

[20] ADR 2021 - Agreement concerning the International Carriage of Dangerous Goods by Road. United Nations Economic Commission for Europe. Online available at: https://unece.org/adr-2021-files
[21] PART 2, Classification. Online available at: https://unece.org/DAM/trans/danger/publi/adr/adr2005/English/Part2.pdf
[22] Analysis of fire and explosion hazards during surface transport of liquefied petroleum gas: A case study. Nilambar Bariha, Indra Mani Mishra and Vimal Chandra Srivastava, Department of Chemical Engineering,

petroleum gas. Number of students per square meter in university, school or any educational facility is much higher than any people in any commercial shops in Bhara Kahu commercial area. This is globally accepted common practice that students sit very close in class rooms. All judges of courts are highly respectable and honourable for me but if some problem / accident occur with vehicle carrying dangerous goods and students loss their lives, the responsibility will be directly fix on government of Pakistan, National Commission for Human Rights (NCHR), Islamabad High Court and Supreme Court of Pakistan.

Vehicles for transportation of dangerous goods are continuous life threat for the students of Islamabad model school for girls (class I-VIII) and Quaid-i-Azam University and Islamabad Model College for Girls Bhara Kau. ***(Please see project photos in appendix II, page no.62, 63 and 66)***

Wrongly routed and poorly designed dual carriageway of Bhara Kahu bypass road project is closely passing the boundary wall of Islamabad model school for girls (Location GPS coordinates: 33°44'39.4"N 73°10'06.4"E), Kot hathyal, Bhara Kahu, Islamabad, Pakistan. There is zero setback distance between school and carriageway. School building will receive traffic-induced vibrations on daily basis. These vibrations cause physical pollution of the environment and will impact badly on the health of growing age children of school. The school consists of seven hundred and forty (740) girl students. Traffic-induced vibrations are also extremely dangerous for the (i) structurally cracked block No.1 of school building which is constructed in 2006 and located near boundary wall of school (ii) and the structurally cracked block No.2 of school building which is constructed under Prime minister of Pakistan's reform 2016. In this context, an scanned copy of original handwritten signed letter and typed letter of the above inked school headmistress, honourable Attiya Parveen is attached in appendix II, page no.64 and 65. In order to make the alignment of carriageway, boundary wall of the above inked school will be demolished up to 2 meters inside the school premises from Chainage 2+050 to Chainage 2+075 along the three-lane dual carriageway of Bhara Kahu bypass project. ***(Please see project photo in appendix II, page no.63)***

A setback is used to create a buffer area which protects buildings or structures from the road by mitigating noise levels, by providing a safety zone and by improving aesthetics through landscaping or screening in accordance with Chester county planning commission, state of Pennsylvania, United State of America. **[24]** Setbacks protect road and highway safety in accordance with Ministry of Transportation and Infrastructure, Province of British Columbia, Canada.

Capital development authority's (CDA's) bypass road project gravely violated the minimum setback distances in case of Islamabad model school for girls (class I-VIII) and Islamabad Model College for Girls Bhara Kau and Quaid-i-Azam University,

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Indian Institute of Technology, Roorkee, Roorkee-247667, Uttarakhand, India. Online available at: https://www.icheme.org/media/8950/xxiv-paper-55.pdf

23 liquefied natural gas road tanker explosion. Juan Manuel Bonilla Martinez, Chemical Engineer. Fire Officer at Murcia Fire Service & Rescue. Online available at: https://www.gti.energy/wp-content/uploads/2018/12/Safety-4-Juan_M_Bonilla-LNG17-Poster.pdf

24 Chester county planning commission. . On line available at: https://www.chescoplanning.org/municorner/MultiModal/12-SetBacks.cfm

Islamabad. The setback between the girls college boundary wall to three-lane dual carriageway is 7 meters (23 feet) which is very dangerous and not acceptable. And if we count from the right of way (ROW) of dual carriageway, it is zero setback distance.

11. Engineering Solution No.1 (Priority No.1, preferable to execute immediately):

The economy of Pakistan falls in lower middle income as per World Bank classification. Pakistan is the fifth most populous country in the world. Land use planning plays a significant role in economy of any country. Therefore, land use planning is also highly focused to ink the recommendations. An environmental friendly, low cost engineered, highly efficient, safe and highly preferable engineering solution is provided in mention below recommendations.

Recommendations:

(i) The traffic congestion area and traffic jam area of unplanned commercial area of Bhara Kahu stretches on both directions of the old existing two-lane dual carriageway (National Highway N-75) from GPS coordinates 33°44'06.1"N 73°10'01.7"E to the GPS coordinates 33°44'59.6"N 73°11'44.5"E. ***(Please see the satellite image of Google Earth in appendix II, page no.67)*** The traffic congestion area and traffic jam area of the two-lane dual carriageway (National Highway N-75) section between the above inked GPS coordinates is 3.18 kilometres (approximately) long as per measurement of Google Earth software. While the Capital Development Authority's (CDA's) traffic study report (It is inked in revised Environmental Impact Assessment report) calculated absolutely incorrect length of 6.3 kilometres of the old existing two-lane dual carriageway (National Highway N-75) section for traffic congestion in unplanned commercial area of Bhara Kahu. [25] It proves that Capital Development Authority's (CDA's) surveyors did not physically visited the traffic problematic area in Bhara Kahu, Islamabad.
Capital Development Authority (CDA) and National Highway Authority need to develop the project under the umbrella of (i) Land use planning, (ii) Global Plan for the Decade of Action for Road Safety 2021-2030, (iii) low cost road maintenance engineering, (iv) traffic engineering, (v) road safety engineering, and (vi) National Transport Policy of Pakistan, 2018.

(ii) Road capacity of old existing two-lane dual carriageway (National Highway N-75) is quite sufficient for the safe and efficient travel of existing traffic volume. If we observe traffic flow from Lake View Park (GPS coordinates 33°43'18.3"N 73°08'03.9"E) to the Jillani town link road (GPS coordinates 33°44'06.1"N 73°10'01.7"E) on the National Highway N-75, we note absolutely no problem in road capacity in terms of passenger car units (psu), and vehicle speed is even much more than National Highway Authority's speed limit of 40 km/hour. Similarly, If we

[25] Revised environmental impact assessment (EIA) report, construction of Bhara Kahu bypass, Islamabad. Traffic Study Report, Page No.5. October 2022. On line available at: Website of Pakistan Environmental Protection Agency

observe traffic flow from Shahpur link road (33°44'59.6"N 73°11'44.5"E) to 17 Mile Toll Plaza (33°45'47.6"N 73°13'09.8"E) on the National Highway N-75 and onwards Murree (33°55'01.8"N 73°23'37.7"E), there is no traffic congestion and traffic jam.
The only problematic traffic zone is unplanned commercial area of Bhara Kahu because miscellaneous classes of vehicle occupy some space for parking on the old existing two-lane dual carriage way. The illegal parking is the major cause of traffic congestion and traffic jam in unplanned commercial area of Bhara Kahu. In addition, it effects traffic volume and sometimes maximizes the traffic density. When traffic density reaches maximum, the traffic flow drops to zero and result is traffic jam.
Activation of Islamabad traffic police is also essential for the immediate lifting of the illegally parked vehicles on the existing old dual carriageway (National Highway N-75) and impose the proposed fine of 300 US$ with electronic payment method.
World Health Organization and the United Nations Regional Commissions develop a document named "Global Plan for the Decade of Action for Road Safety 2021-2030". This document discourages the use of private vehicles in high density urban areas. [26]
Unplanned commercial area of Bhara Kahu is a high density area. Therefore, Capital Development Authority (CDA) needs to not allow the private vehicles / motor cycles who carry people for shopping purposes in unplanned commercial area of Bhara Kahu.
Green line metro bus service is the highly appreciated initiative of government of Pakistan in the unplanned commercial area of Bhara Kahu. So, the people can use the public transport. ***(Please see project photos in appendix II, page no.69)***

(iii) National Highway Authority (NHA), Pakistan needs to remove potholes, alligator cracking and other road hazards for smooth traffic flow. National Highway N-75 is in very poor condition in unplanned commercial area of Bhara Kahu. The carriageway maintenance work falls in the scope of National Highway Authority (NHA).
(Please see project photos in appendix II, page no.70, 71, 72 and 73)

(iv) Autonomous vehicles sense road surface markings and surrounding environment. Road surface markings highly impact the safe driving of both autonomous vehicles and non-autonomous vehicles. National Highway Authority (NHA), Pakistan needs to repaint all road surface markings including lane markings which are deleted or unreadable on the existing old dual carriageway (National Highway N-75). Unreadable or deleted road surface markings are the violation of 1968 convention on road signs and signals. [27]
National Highway Authority (NHA) needs to paint all road surface markings with night glow road marking paints because it will be visible for vehicle drivers in night. This will help to reduce traffic congestion, traffic jam and road crashes. Similarly installation of cat's eyes or road studs is required to install in many places.
(Please see project photo in appendix II, page no.68)

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[26] Global Plan for the Decade of Action for Road Safety 2021-2030, World Health Organization. Page No. 11 On line available at : https://www.who.int/publications/m/item/global-plan-for-the-decade-of-action-for-road-safety-2021-2030

[27] Road Traffic and Road Signs and Signals Agreements and Conventions. United Nations Economic Commission for Europe. Online available at: https://unece.org/road-traffic-and-road-signs-and-signals-agreements-and-conventions

(v) National Highway Authority (NHA), Pakistan needs to install mandatory road signs, warning road signs and informative road signs on the both directions of the old existing dual carriageway (National Highway N-75). These traffic engineering and road safety engineering measures help to prevent fatal road crashes.

(vi) Capital Development Authority (CDA), Islamabad, Pakistan needs to install two signalized T-junctions at both directions of the old existing dual carriageway at Athal Chowk Bhara Kahu. One signalized T-junction at simly dam road and second signalized T-junction at kiani road. Same traffic engineering philosophy is needed to adopt at all busiest minor roads which links the two-lane dual carriageway (National Highway N-75).

(vii) Capital Development Authority (CDA), Islamabad, Pakistan needs to paint give way sign (road surface marking) to all non-busy minor roads in Bhara Kahu which links the two-lane dual carriageway (National Highway N-75).

(viii) Marijuana-impaired driving is very common practice in Pakistan. Marijuana-impaired drivers are a great threat to road safety. Islamabad traffic police needs to indiscriminately conduct the roadside saliva test to identify the marijuana-impaired drivers on the old existing two-lane dual carriageway (National Highway N-75). In this context, a heavy fine of 500 US$ with electronic payment method and one year suspension of driving licence is proposed.
In many departments of government of Pakistan including federal ministries of Pakistan, anyone can easily find the marijuana addicted persons. These marijuana addicted few black sheep are openly involved in small scale distribution network of marijuana trafficking. This way the multibillion dollar drug network runs in Pakistan. The link between terrorism and drug trafficking is evident. Marijuana trafficking is one of the forms of drug trafficking. Medical departments of Pakistan Air force, Pakistan Navy and Pakistan Army needs to launch the joint operation against Narco-Terrorism and dismiss these government employees from their jobs.

(ix) Islamabad Traffic Police needs to discourage the frequent and unnecessary lane changing practices of reckless vehicle drivers. In this context, a heavy fine of 200 US$ is proposed with electronic payment method. If vehicle drivers will not observe the lane discipline, the result is road accident, traffic congestion or traffic jam.

(x) In case of road accident, post-crash quick response is required on the existing old two-lane dual carriageway (National Highway N-75) in densely populated unplanned commercial area of Bhara Kahu.

(xi) Islamabad Traffic Police needs to enforce the safe distance of at least three seconds from one vehicle to another vehicle on the existing old dual carriageway in unplanned commercial area of Bhara Kahu. This three seconds crash avoidance space will prevent the vehicle collision and helps smooth flow of all classes of vehicles.

(xii) Prior to start the unplanned commercial area of Bhara Kahu, National Highway Authority erected the mandatory road sign of 40 kilometres per hour vehicle speed.
(Please see project photo in appendix II, page no.74)
It is recommended to National Highway Authority (NHA) that please enforce the speed limit 20 km/hour or less in the area stretches from GPS coordinates 33°44'06.1"N 73°10'01.7"E (Jillani town link minor road) to the GPS coordinates 33°44'59.6"N 73°11'44.5"E (shahpur link minor road). If vehicle speed is reduced to 20 km/hour, hardly 10 minutes will be require to travel the 3.18 kilometres (approximately) long traffic congestion area.
Pedestrian's safety and vehicle driver's safety demands lower speed in unplanned commercial area of Bhara Kahu, Islamabad. If someone is driving with higher speed, the vehicle breaking distance will be also greater. In addition, "Global Plan for the Decade of Action for Road Safety 2021-2030" also advises to implement the policy of lower speed.[28]
Road safety is internationally shared concerned in accordance with honourable David M. Malone, Rector of the United Nations University under Secretary General of the United Nations.

(xiii) Capital Development Authority (CDA) and National Highway Authority (NHA) needs to install the weigh-in-motion sensors in an area of free traffic flow with good sight distances in any appropriate point between GPS coordinates 33°43'46.6"N 73°08'41.5"E and GPS coordinates 33°44'06.5"N 73°09'58.9"E on both directions of the existing old two-lane dual carriageway (National Highway N-75). A weigh-in-motion sensor is highly sophisticated equipment. It automatically calculates real time traffic volume, vehicle class, traffic count, vehicle speed, equivalent single axle loading (ESAL) value, axle spacing, axle weight, gross axle weight, date and time of passage etc. In addition, it helps in modern policing and crime control.

(xiv) In order to prevent from traffic congestion and traffic jams, government of Pakistan need to publish and implement the mentioned below road maps and action plans.

- **Road map and Action Plan for vehicle regulations (WP.29).**

(Engineering Development Board, Islamabad, Pakistan is responsible government organization to publish and implement this document.)

- **Road map and Action Plan for Global Technical Regulations.**

(Engineering Development Board, Islamabad, Pakistan is responsible government organization to publish and implement this document.)

- **Road map and Action Plan for "Vision Zero" for Islamabad, particularly in Bhara Kahu area.**

(Capital development authority and National Highway Authority are responsible to publish and implement this document with the help of Islamabad Traffic Police.)

[28] Global Plan for the Decade of Action for Road Safety 2021-2030, World Health Organization. Page No. 11 On line available at : https://www.who.int/publications/m/item/global-plan-for-the-decade-of-action-for-road-safety-2021-2030

(xv) Traffic fines of Islamabad traffic police are extremely low. That's why many Pakistani people do not follow the traffic rules and do not take seriously the traffic police. The result is road deaths and injuries, and traffic congestion. It is proposed that Islamabad traffic police needs to prepare the legal document for the revision of traffic fines. In this context, Islamabad traffic police can follow the practices of United Arab Emirates or European Union.

(xvi) Signalized pedestrian crossings are needed to install on both directions of old existing two lane dual carriage way (National Highway N-75) in Bhara Kahu area.

(xvii) National Transport Policy of Pakistan inks that modern intelligent transportation system (ITS) will be adopted to enhance the planning and operation of the road network. [29] Intelligent Transportation System (ITS) mitigates the traffic congestion and traffic jam issues. It increases the vehicle safety and enforces the automatic traffic enforcement system. Instead of executing the non-environmentally friendly and high cost (In Pakistani currency, 7004 million or 7.004 billion) carriageway construction project of Bhara Kahu bypass road project, Capital development Authority (CDA) and National Highway Authority (NHA) need to invest in low cost, safe and highly efficient engineering solution i.e. Intelligent Transportation System (ITS) for the existing two- lane dual carriageway of Bhara Kahu and all its linked minor roads.

(xviii) Weigh-in-Motion sensors provide automatic accurate real time daily/monthly/yearly data for the traffic study, and it is a part of intelligent transportation system (ITS). Weigh-in-motion (WIM) system for 2 lane costs roughly US$ 100,000 to US$ 300,000 as per applications and operating conditions. Detailed quotation of weight-in-motion (WIM) system of Czech Republic based manufacturer named "CAMEA" is shared as example in appendix I. The quotation refers to a weight-in-motion (WIM) station for the monitoring of 2 lanes in one direction of National Highway N-75, in start of Bhara Kahu area, Islamabad, Pakistan.

(Please see detailed quotation in appendix I, page no.41, 42 and 43)

On the basis of **"Traffic Study"**, engineers decide to expand the capacity of carriageways / roadways or switch to the options of bypass roads or elevated road structures. Both National Highway Authority (NHA) and Capital Development Authority (CDA) have not installed the weigh-in-Motion sensors. That's why both government entities have not latest accurate real time data for the traffic study.

Hence, it proves that there is absolutely no foundation for the project planning and development of front-end engineering design (FEED) documents of Bhara Kahu bypass road project. There is absolutely no strong and genuine reason to execute the Bhara Kahu bypass road project. Basic principles of transportation planning and traffic engineering are completely ignored.

All bureaucrats of miscellaneous government departments / ministries involved in the approval process of PC-1 and PC-11 of wrongly routed and poorly designed Bhara

[29] National Transport Policy of Pakistan, 2018. Planning Commission, Ministry of Planning, Development & Reform, Government of Pakistan Page No. 19. Online available: https://www.pc.gov.pk/uploads/downloads/policy.pdf

Kahu bypass road project falls in the category of white collar criminals and needs to dismiss from their government jobs. PC-1 and PC-11 is a planning tool which is used the Ministry of Planning Development & Special Initiatives, Islamabad, Pakistan.

12. Engineering Solution No.2 (Priority No.2, Required at second stage):

National highway authority (NHA), Islamabad, Pakistan hired the consultancy services of Associated Consultancy Centre (Private) Limited, Islamabad, Pakistan. On July 20, 2022, Associated Consultancy Centre (Private) Limited prepared Environmental Impact Assessment (EIA) report in association with (i) Associated Consulting Engineers Limited, Lahore, Pakistan. (ii) Finite Engineering (Pvt.) Limited, Islamabad, Pakistan. (iii) ECOS, Islamabad, Pakistan. [30]
The above inked consultants proposed 3.5 km (approximately) long four-lane overhead bridge or flyover on the existing two-lane dual carriageway (National Highway N-75). The start point of proposed flyover is at Km 6+500 near Jillani Town, Bhara Kahu, Islamabad and end point is at Km 10+000 near Qaziabad, Bhara Kahu, Islamabad. The above inked consultants inked the cost of 7.6 billion rupees. This was the best engineering solution of National highway authority (NHA) and it's above mentioned consultants because it considers the principle of land use planning in urbanization. This environmental friendly and smart transportation land use engineering solution is required at second stage. In present scenario, the road capacity of existing two-lane dual carriageway (National Highway N-75) in the unplanned commercial area of Bhara Kahu area is absolutely sufficient for the existing traffic volume, and the capital development authority's (CDA's) incorrectly forecasted 85, 711 vehicle travel demand in 2048.

Recommendation:
Sustainable urban development of Islamabad pushes the Capital Development Authority (CDA) to develop the policy of transportation land use in smart and an efficient way. The above inked authority can construct the elevated carriage way on the existing two-lane dual carriageway (National Highway N-75) based on the latest accurate real time data received from Weigh-in-Motion sensors. But presently there is no requirement to launch the elevated carriageway project in unplanned commercial area of Bhara Kahu. In future, Capital Development Authority (CDA) and National Highway Authority can launch the elevated carriageway / flyover project based on latest accurate real time traffic study.

13. Preparation of damage claims:

Quaid-i-Azam University, Islamabad needs to respect section 27 (5A) of Pakistan Engineering Council (PEC) Act, 1976 and fundamental human rights related article 18 of the constitution of Pakistan, and appoint Pakistan Engineering Council registered

[30] Consultancy services for feasibility study and detailed design for construction of 4 – lane flyover at Bara – Kahu (n–75).Environmental Impact Assessment (EIA) report. July 2020. Client: National Highway Authority (NHA). On line available at: Pakistan Environmental Protection Agency's website

professional engineer as a Director works. Present Director Works, Bakht Rahman is non-engineer and needs to remove from the present post. In order to get damage claim from Capital Development Authority (CDA), Director works of Quaid-i-Azam University needs to prepare the detailed damage assessment report which include the

(i) Tree damage activities in an area of Quaid-i-Azam University.
Location: GPS coordinates 33°44'33.8"N 73°09'32.8"E
(Please see project photos in appendix II, page no.75, 76 and 77)

(ii) University's boundary wall demolition activities at chainage 0+575 of three-lane dual carriageway (bypass road).
(Please see project photos in appendix II, page no.78, 79 and 80)

(iii) Earth removal for the construction of underpass in an area of Quaid-i-Azam University. Location: GPS coordinates: 33°44'31.5"N 73°09'31.1"E
(Please see project photos in appendix II, page no.81 and 82)

(iv) Construction camp facility in an area of Quaid-i-Azam University.
Location: GPS coordinates: 33°44'26.6"N 73°09'28.0"E
(Please see project photos in appendix II, page no.83 and 84)

(v) Precast yard for pre stressed concrete girder for bridge in an area of Quaid-i-Azam University.
Location: GPS coordinates: 33°44'40.7"N 73°09'58.7"E.
(Please see project photo in appendix II, page no.85)

(vi) Concrete batching plant in an area of Quaid-i-Azam University.
Location: GPS coordinates: 33°44'44.0"N 73°09'51.7"E
(Please see photo in appendix II, page no.86)

(vii) Movement of soil loaded trucks and construction equipment in an area of Quaid-i-Azam University. ***(Please see photos in appendix II, page no.87)***

(viii) Total damage assessment cost, and break down of damage assessment cost in Pakistani currency.

(ix) Photographic or video evidences.

etc

14. <u>Role of Chancellor of Quaid-i-Azam University and major stake holder (university students) is neglected</u>:

His Excellency Dr. Arif Aivi, President of Pakistan is the chancellor of Quaid-i-Azam University, and he is also the high ranked stakeholder of Quaid-i-Azam University. The major stake holder of Quaid-i-Azam University is students but they have no official representation in the serious issues of university. Students are paying heavy fees to university's administration and heavy indirect taxes to the government of Pakistan. Quaid-i-Azam University is operating in two shifts. Many students are forced to live outside the university in unsecure areas because Quaid-i-Azam University's management failed to provide the living space in its premises of university. In addition, the roads are unsafe for student's pedestrian traffic and student's bicycles traffic. In middle of August month 2022, two innocent pedestrian student girls (honourable Adawa Tariq and honourable Saira) died in a high speed mini truck accident on the road vertical curve located (GPS coordinates: 33°44'35.5"N 73°09'03.2"E approximately) in Quaid-i-Azam University. Government of Pakistan

and Quaid-i-Azam University's administration did not learn any lesson from the above fatal road accident. Every class of vehicle including multi axle trucks and commercial vehicles are moving on the roads of university. Axle load limit is not honoured on university roads, which is against the road safety. In addition, marijuana impaired mini passenger vans Toyota hiaces drivers are also driving vehicles with unsafe speed limit of 40-50 km/ hour in Quaid-i-Azam University. No any kind of compensation is given in form of free education up to doctorate degree level or in form of jobs or cash money to the families of the above inked innocent student girls. Despite written request (letter no. WDR-RTV-PK-01 dated Tuesday, November 15, 2022), both Government of Pakistan and Quaid-i-Azam University's administration do not commemorated the World Day of Remembrance for Road Traffic Victims on November 20, 2022.

In order to record protest on daily basis, major stake holder (students) of Quaid-i-Azam University are taking classes at a distance of 90 meters near the road segment of newly under constructed three-lane dual carriageway of Bhara Kahu bypass project. [31] ***(Please see project photo in appendix II, page no.88)*** In order to give construction permission of the wrongly routed and poorly designed dual carriageway for Bara Kahu bypass project, the mentioned below honourable people made conditionally approved land swap deal with the Capital Development Authority (CDA). [32]

(i) Ex vice chancellor of Quaid-i-Azam University and non-executive member of Capital Development Authority (CDA), Professor Dr. Muhammad Ali.

(ii) Nine out of 12 syndicate members of Quaid-i-Azam University. [33]

(iii) Dr. Raja Qaiser Ahmed, Registrar of Quaid-i-Azam University.

Under human rights related article 18 of the constitution of Pakistan, Academic qualification of the above inked vice chancellor, registrar and all 12 syndicate members of Quaid-i-Azam University do not authorize to convert the status of institutional land use of Quaid-i-Azam University into the transportation land use for the Bara Kahu bypass road project. There are no land use professionals, transportation planning professionals and traffic engineers in the above inked composition of Quaid-i-Azam University who approved unlawful land swap deal for the construction of Bara Kahu bypass road project. This is naked infringement of the human rights related article 18 of the constitution of Pakistan, and these all white collar criminals of Quaid-i-Azam University needs to dismissed from the government jobs excluding the only three syndicate members who voted against the land swap deal.

The article 18 of the constitution of Pakistan is reproduced below:

"Subject to such qualifications, if any, as may be prescribed by law, every citizen shall have the right to enter upon any lawful profession or occupation, and to conduct any lawful trade or business:

Provided that nothing in this Article shall prevent-

(a) the regulation of any trade or profession by a licensing system; or

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[31] QAU students take classes at bypass project site. December 17, 2022. Tribune (Pakistani Newspaper) Online available at: https://tribune.com.pk/story/2391459/qau-students-take-classes-at-bypass-project-site

[32] Quaid-i-Azam varsity, CDA's joint working group meets tomorrow to resolve land issue. October 15, 2022. Dawn, Pakistani newspaper. Online available at: https://www.dawn.com/news/1715085/quaid-i-azam-varsity-cdas-joint-working-group-meets-tomorrow-to-resolve-land-issue

[33] Bhara Kahu Bypass project: IHC again extends stay order against construction on QAU land. December 7, 2022. Online available at: https://www.brecorder.com/news/40212943

(b) the regulation of trade, commerce or industry in the interest of free competition therein; or
(c) the carrying on, by the Federal Government or a Provincial Government, or by a corporation controlled by any such Government, of any trade, business, industry or service, to the exclusion, complete or partial, of other persons."
The conditionally approved land swap deal is also against the principle of land use planning. This kind of deal is unlawful and shameful act. There are two other reasons also exists (i) Quaid-i-Azam University's land is intuitional land. (ii) the above inked conditionally approved land swap deal was not discussed and approved the president of Pakistan and the major stake holder of Quaid-i-Azam University i.e; university students.
Every nation respects and give honour to the teachers / professors including Pakistani nation but morally and financially corrupt teachers / professors do not deserve any kind of respect.

15. <u>Poor role of Government of Pakistan in the implementation of rule of law</u>:
Government of Pakistan is not practicing the rule of law in many areas of developmental projects. This irresponsible governance behaviour is not only damaging miscellaneous areas of economy but also compromising the safety, economic security, and environmental security of the people of Pakistan.
(i) Many government entities employ the non-engineers on engineering posts. This is the grave infringement of human rights related article18 of the constitution of Pakistan **[34]** and section 27 (5A) of Pakistan Engineering Council (PEC) Act, 1976. **[35]** Section 27 (5A) is reproduced below:
"No person shall, unless registered as a registered engineer or professional engineer, hold any post in an engineering organization where he has to perform professional engineering work".
Non-engineers are also employed as the head of transportation departments, workshops, planning and work departments and maintenance departments in many universities of Pakistan. In order to make safer and climate resilient buildings, and cost effective safer road geometries, Pakistan Engineering Council (PEC) and Higher Education Commission (HEC) of Pakistan needs to immediately enforce the section 27 (5A) of PEC Act, 1976 in all universities of Pakistan including Quaid-i-Azam University. Students are the biggest stake holder in any university or educational facility. The implementation of section 27 (5A) of PEC Act, 1976 is also required for the safety of students and all other university staff.
(ii) Capital Development Authority (CDA) also employed non-engineers on number of engineering positions. Chairman CDA, Captain (retired) Muhammad Usman Younis is also a non-engineer. That's why he approved and launched the wrong solution of the traffic congestion problem in the unplanned commercial area of Bhara Kahu, Islamabad. In this ways, he made a heavy loss to the national exchequer and generated

34 The constitution of the Islamic republic of Pakistan. National Assembly of Pakistan. Page No.11. Online available at: https://na.gov.pk/uploads/documents/1333523681_951.pdf
35 Pakistan Engineering Council (PEC) Act, 1976. Online available at: https://pec.org.pk/wp-content/uploads/2021/03/PEC-Act-1976.pdf

above discussed multiple problems for the people of Islamabad and people of Pakistan.

(iii) Traffic study report is the integral part of the Environmental Impact Assessment (EIA) report of Bhara Kahu by pass road project. No traffic engineers are employed in Pakistan Environmental Protection Agency (PEPA). Only licenced traffic engineers of Pakistan Engineering Council have the legal right to review, approve or disapprove the traffic study report of Bhara Kahu by pass project. Therefore, approval of Bhara Kahu bypass road project related Environmental Impact Assessment (EIA) report is the naked violation of Pakistan Engineering Council (PEC) Act, 1976.

16. <u>Poor safety engineering practices at project construction sites</u>:

In Bhara Kahu bypass road project Pakistani construction labour is working without Personal Protective Equipment (PPE), fall protection equipment and respiratory protective equipment. These labours have no safety helmets, safety goggles, safety gloves, safety shoes, clothes, safety harness and high visibility safety vests. In addition, no earmuffs are available at concrete batching plant.

If labour falls on the reinforced steel bar, there will be serious injury or death. The reason is this that there are no reinforced steel bar safety caps. Constriction labour is exposed to multiple hazards. Minors are also reported to work on construction sites. ***(Please see project photos in appendix II, page no.89, 90, 91 and 92)***

Maintenance of hydraulic crane on the junction of minor roads in Quaid-i-Azam University premises is dangerous for all road users. This can cause fatal road accident for road users. ***(Please see project photo in appendix II, page no.93)***

Construction machinery operators do not identify the electrical hazards and working near and under energized power lines. ***(Please see project photo in appendix II, page no.94)***

Instead of placing water-filled Plastic jersey barriers, contractor needs to place the concrete jersey barriers. The depth of pilling pit is many feet below from the ground level of old existing two-lane dual carriageway (National Highway N-75), and any road user including vehicular traffic can fall in the deep pilling pit. ***(Please see project photo in appendix II, page no.95)***

Lubrication is essential for both the hydraulic rig and safety of rig operator. On project site, the mentioned below points of hydraulic rigs for pilling was not properly lubricated as per manufacturer's recommendations. And no fire extinguishers are on the drilling site. ***(Please see project photos in appendix II, page no.96 and 97)***

(i) Swing bearing
(ii) Lower bearing of boom cylinder.
(iii) Swing gear
(iv) Connecting shaft of boom
(v) Connecting shaft of lower boom
(vi) Outer bearing of main switch
(vii) Outer bearing of auxiliary winch
(viii) Connecting shaft of mid mast and lower mast
(ix) Connecting shaft of turntable and triangle
(x) Turntable block and turntable
(xi) Guide pulley shaft

(xii) Swing bearing of Kelly guide
(xiii) Swivel head bearing
(xiv) Connecting shaft of upper mast and mid mast
(xv) Connecting shaft cathead and upper mast
(xvi) Small pulley shaft of cathead
(xv) Big pulley shaft of cathead
Scaffolding of the overhead structure of trumpet interchange located at busy operational dual carriageway of National Highway N-75 is highly dangerous. It can fall because of any reason on the miscellaneous class of traffic vehicles and road users can get severe injury, disability or death as a result.
(Please see project photo in appendix II, page no.98)
Capital Development Authority (CDA), National Logistics Cell and it's all subcontractors are absolutely ignoring the:

- Guiding Principles on Business and Human Rights: Implementing the United Nations 'Protect, Respect and remedy' Framework."[36]
- **(ii)** Target 8.8 of United Nation's sustainable development goal (SDG) No.8

"Protect labour rights and promote safe and secure working environments of all workers, including migrant workers, particularly women migrants, and those in precarious employment".
Only the foreign contractors / operators strictly follow the safety protocols in construction sector in Pakistan. Pakistani private contractors or government of Pakistan's business entities do not value labour's life. That's why safety protocols are very poorly enforced in Pakistan. Only Pakistan Atomic Energy Commission (PEC) has very high safety protocols in Pakistan at its miscellaneous nuclear facilities.
It is proposed to Pakistan Engineering council (PEC) that heavily fine (2000 US $ or more) the contractors at project construction sites. In this regard, Pakistan Engineering Council (PEC) needs to make some necessary regulations.

17. <u>Conclusions</u>:

(i). Wrongly routed and poorly designed Bhara Kahu bypass road project don't serve the interest of people of Islamabad, people of Pakistan and international partners of Pakistan. It deviate many international instruments. It is simply wastage of tax payer's money in heavily indebted country of Pakistan.
(ii). Bhara Kahu bypass dual carriageway is unsafe for vehicles.
(iii). Government of Pakistan needs to immediately stop the construction of Bhara Kahu bypass road project and priority wise pursue the above discussed engineering solutions.
(iv). Government of Pakistan need to honour the principle of institutional land use in case of Quaid-i-Azam University.

[36] Guiding Principles on Business and Human Rights: Implementing the United Nations 'Protect, Respect and remedy' Framework. United Nations Human rights, Office of the High Commissioner. United Nations: New york and Geneva, 2011. Online available at:
https://www.ohchr.org/sites/default/files/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf

(v) Government of Pakistan need to respect the structural setback distances of Islamabad model school for girls (class I-VIII),Kot hathyal, Bhara Kahu and Islamabad Model College for Girls Bhara Kau and Quaid-i-Azam University.

(vi). Pakistan Environmental Protection Agency has not capacity to identify the blunders in the traffic study reports and in the engineering related miscellaneous data.

(vii). Pakistani judicial system has not capacity to trace the white-collar crimes in the engineering fields / construction fields.

(viii) Many government of Pakistan's departments in provinces and capital are openly violating the human rights related article 18 of the constitution of Pakistan and section 27 (5A) of Pakistan Engineering Council (PEC) Act, 1976. It seems that there is no rule of law in Pakistan.

(ix) Old existing two-lane dual carriage way (National Highway N-75) falls in the scope of National Highway Authority, Pakistan. Here, the question arises that why the management of National Highway Authority allowed the construction of the wrongly routed and poorly designed Bhara Kahu bypass road project based on the inaccurate traffic study report.

(x) Massive bureaucratic reforms, employment of only domain specific professionals and digitization are needed in every government department.

Appendix I

Quotation: Weigh-In-Motion

Pakistan, 2 traffic lanes, one direction.

Quote Date: 2022-12-20
Expiry Date: 2023-01-20
Quote ID: 202276

To: Khan Kamran
Kamran Khan

tel.: +923002423418
email: kamrankhan.azerbaijan@gmail.com

From: Piglionica Giovanni
CAMEA Technology, a.s.
Karásek 2290/1m
621 00 Brno
tel.: +420 777 157 074
email: g.piglionica@camea.cz

IMPORTANT NOTES:
The price is FCA Brno, Czech Republic, according to INCOTERMS 2020. Duties and taxes are not covered in the scope of the quotation.
The Updates are quoted for 12 months. After this period the Updates should continue. The prices for the next period will be agreed at the end of initial period.
The Installation Supervision costs (with the exception of the Remote Installation Support) are to be considered for the first installation only.
The expected accuracy is 5%. CAMEA can only guarantee the system accuracy if all parameters of the road comply with the Class I Excellent requirements described in COST323, section Criteria for the Choice of WIM Sites.

01. WIM Equipment

No.	Item	Description	Qty
1	Measurement Unit	Measurement unit. Inputs: 8 piezoelectric sensors, 8 inductive loops, temperature sensor and I/O.	1
2	Cabinet	Cabinet with specifications to be defined.	1
3	IO Board Adapter Cable	IO board adapter cable. Length: 2 m.	1
4	Inductive Loop Board Adapter Cable	Inductive loop board adapter cable. Length: 2 m.	1
5	Embedded CPU Power Supply Cable	Power supply cable for embedded CPU. Length: 2 m.	1
6	Data Cable	Data cable. Length: 0.5 m.	1
7	Rack Holder	3U 19" rack.	1
8	Processing Unit	Processing unit. Rugged, industrial grade, 19" rack, high performance, 4TB SSD disc for data storage, 2-port 1Gbps network card.	1
9	Power Supply Unit	Power supply with circuit breakers (1000 W).	1
10	Ethernet Switch	Industry grade ethernet switch. 8 ports.	1
11	LTE Router	LTE router. 4 Ethernet ports.	1
12	GPS Unit	GPS unit for time synchronization.	1
13	GPS Unit Connector	Connector for GPS unit.	1
14	Overview Camera/GPS Unit Power Supply and Signal Cable	Power supply and signal cable for GPS unit. Length: 10m.	1
15	WIM Measurement License	WIM measurement. License for 1 traffic lane.	2
16	IO Processing License	IO board temperature sensor processing. License for 1 IO board.	1
17	Dual Tire Detection License	Dual tire detection. License for 1 station.	1
Total price excl. VAT [EUR]			19.560,32

02. Data Storage Services (optional)

No.	Item	Description	Qty
18	Data Storage Server License	Data storage services: database, web (on-line visualization, statistics, configurable). License for 1 data storage server.	1
19	Data Storage Access License	Data storage services. License for connecting 1 station.	1
Total price excl. VAT [EUR]			2.790,56

03. WIM Sensors

No.	Item	Description	Qty
20	Weighing Sensor	Weighing sensor for WIM applications. 1.75m length, cable length 60 m. Note: Sensor and cable length must be specified.	4
21	Weighing Sensor	Weighing sensor for WIM applications. 2.0m length, cable length 60 m. Tilted sensors for vehicle position and dual tire detection and accuracy improvement. Note: Sensor and cable length must be specified.	4
22	Weighing Sensor Grouting Compound	Grouting compound for weighing sensors.	16
23	Inductive Loop Cable	Inductive loop cable. Length: 100m.	4
24	Inductive Loop Connector	Connector for 2 inductive loops.	2
25	Inductive Loop Protection	Sealing strip for inductive loops. Length: 1m.	120
26	Inductive Loop Extension Cable	Extension cable for 2 inductive loops. Length: 50m.	2
27	Inductive Loop Grouting Compound	Grouting compound for inductive loops.	28
28	Temperature Sensor	Temperature sensor. Length: 10m.	1
29	Temperature Sensor Connector	Connector for temperature sensor.	1
30	Temperature Sensor Extension Cable	Extension cable for temperature sensor. Length: 25m.	1
Total price excl. VAT [EUR]			51.026,57

04. Camera System

No.	Item	Description	Qty
31	ANPR Camera	ANPR camera with integrated flash. Up to 2 traffic lanes.	1
32	ANPR Camera Connector	Connector for ANPR camera.	1
33	ANPR Camera Adjustable Holder	Adjustable holder for ANPR camera.	1
34	ANPR Camera Power Supply and Signal Cable	Power supply and signal cable for ANPR camera. Length: 60m.	1
35	ANPR Camera Ethernet Cable	Ethernet cable for ANPR camera. Length: 60m.	1
36	Camera License	Time synchronization, videodetection and license plate recognition. License for 1 camera for up to 2 lanes.	1
37	Overview Camera	Overview camera.	1
38	Overview Camera Connector	Overview camera connector.	1
39	Overview Camera Adjustable Holder	Adjustable holder for overview camera.	1
40	Overview Camera/GPS Unit Power Supply and Signal Cable	Power supply and signal cable for overview camera or GPS unit. Length: 70m.	1

04. Camera System

No.	Item	Description	Qty
41	Overview Camera License	Overview camera integration license. License for 1 camera.	1
Total price excl. VAT [EUR]			8.540,20

05. Dimension Measurement DIM

No.	Item	Description	Qty
42	3D Scanner	3D laser scanner for vehicle dimension and 3D profile measurement.	3
43	3D Scanner Cover	Weatherproof cover for 3D scanner.	3
44	3D Scanner Holder	Adjustable holder for 3D scanner.	3
45	3D Scanner Signal Cable	Signal cable for 3D scanner. Length: 30m.	3
46	3D Scanner Power Supply Cable	Power supply cable for 3D scanner. Length: 30m.	3
47	3D Scanner Ethernet Cable	Ethernet cable for 3D scanner. Length: 30m.	3
48	Dimension-In-Motion License	Dimension measurement using a certified 3D scanner. License for 1 laser scanner.	3
Total price excl. VAT [EUR]			36.445,26

06. Installation Supervision

No.	Item	Description	Qty
49	Installation Supervision	Installation supervision by CAMEA expert. Charged in man-days. Note: 3 days for installation supervision, 2 days for training, 2 days for travel.	7
50	Remote Installation Support	Remote installation support package. Charged in man-days. Maximum 2 man-days per station.	2
51	Travel Expenses	Travel costs (depends on location). Note: The cost is an estimate. Real travel costs will be invoiced.	1
52	Accommodation	Standard level accommodation costs. Charged in man-days. Note: The cost is an estimate. Real accommodation costs will be invoiced.	6
53	Allowance	Standard level allowance costs. Charged in man-days. Note: The cost is an estimate.	6
Total price excl. VAT [EUR]			12.485,00

07. Tools

No.	Item	Description	Qty
54	Grouting Compound Gun	Gun for grouting compound.	1
Total price excl. VAT [EUR]			44,00

08. Documentation

No.	Item	Description	Qty
55	Documentation	Project documentation.	1
Total price excl. VAT [EUR]			766,70

09. SW Updates

No.	Item	Description	Qty
56	Update Plan	Plan for SW updates. Price per station per month. Note: Quoted updates for the first year, the updates should be paid regularly each year.	12
Total price excl. VAT [EUR]			3.960,00

10. Support (optional)

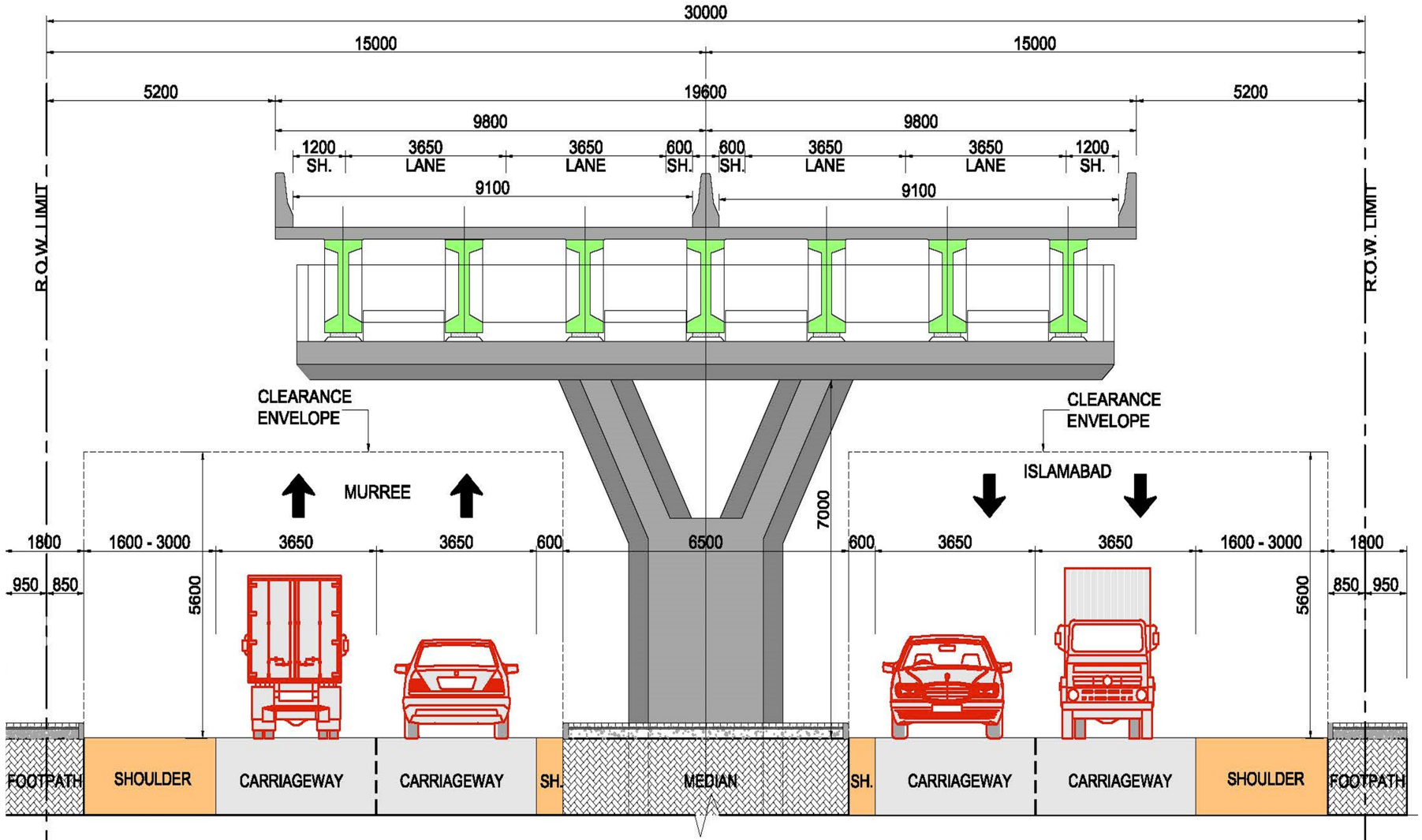
No.	Item	Description	Qty
57	Support	Service Level 3 support. Price per hour. Note: Pre-paid 100 hours of 3rd level support.	100
Total price excl. VAT [EUR]			12.250,00

Summary

Item	Total price excl. VAT [EUR]
01. WIM Equipment	19.560,32
02. Data Storage Services (optional)	2.790,56
03. WIM Sensors	51.026,57
04. Camera System	8.540,20
05. Dimension Measurement DIM	36.445,26
06. Installation Supervision	12.485,00
07. Tools	44,00
08. Documentation	766,70
09. SW Updates	3.960,00
10. Support (optional)	12.250,00

This quotation is subject to CAMEA's general terms and conditions. In case you have not received the document, please contact the CAMEA sales department at international@camea.cz

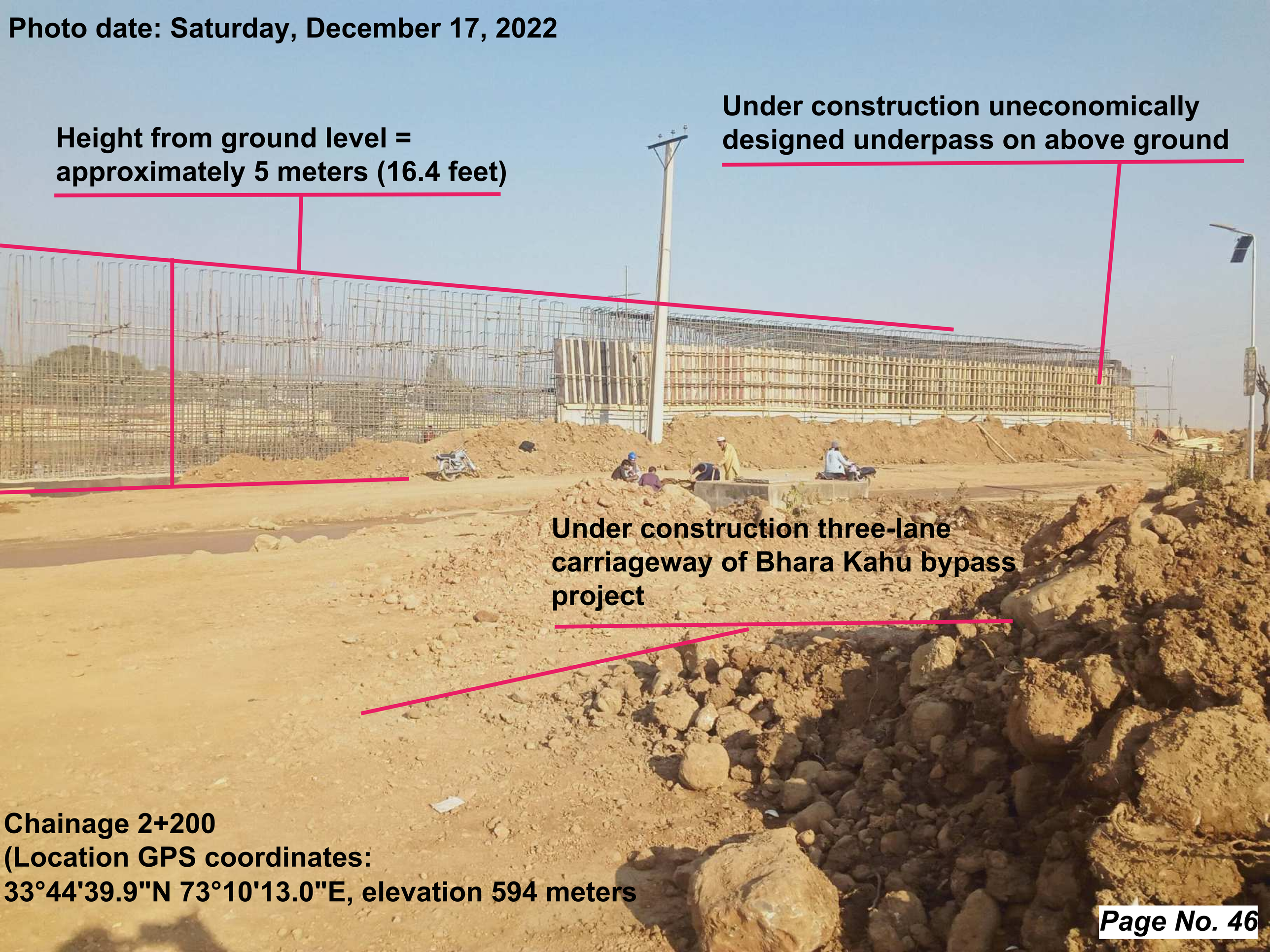
Appendix II



TYPICAL ROAD CROSS SECTION

NOTE: PIER & GIRDER SHAPES ARE INDICATIVE AND SHALL BE FINALIZED DURING DETAILED DESIGN.

Photo date: Saturday, December 17, 2022



Chainage 2+200
(Location GPS coordinates:
33°44'39.9"N 73°10'13.0"E, elevation 594 meters

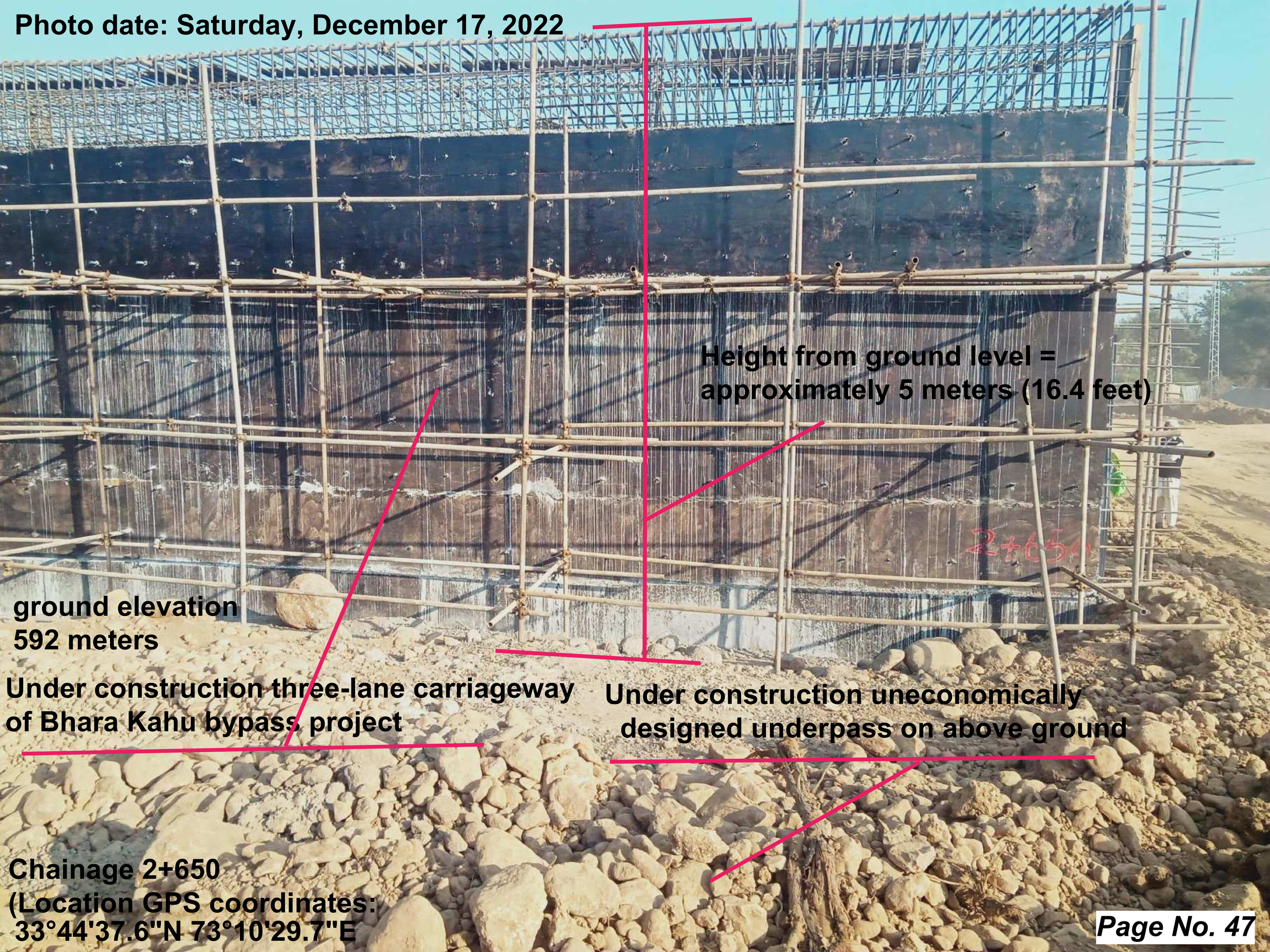


Photo date: Saturday, December 17, 2022
Height from ground level =
approximately 5 meters (16.4 feet)
ground elevation
592 meters
Under construction three-lane carriageway
of Bhara Kahu bypass project
Under construction uneconomically
designed underpass on above ground
Chainage 2+650
(Location GPS coordinates:
33°44'37.6"N 73°10'29.7"E

Photo Date: Wednesday, November 23, 2022

Parallelly the newly constructed bridge on Kiani road is operational for traffic.

The existing old bridge of Kiani road is not in working condition.

Under construction multilane bridge of the Bhara Kahu bypass project. Pilling work continues.

Bridge chainage: 1+900

Location GPS coordinates: 33°44'38.7"N 73°10'01.4"E

Photo Date: Wednesday, November 23, 2022

Under construction of single cell box culvert at chainage 3+060
Location GPS coordinates: 33°44'38.3"N 73°10'45.2"E

Photo Date: Wednesday, November 23, 2022

Under construction [redacted] underpass of Bhara Kahu bypass project at the location 33°44'38.6"N 73°10'50.1"E.
This underpass will link the Friday Market in Ahmad Town.
Three-lane dual carriageway chainage 3+193

Date: Monday, January 16, 2023

Low height and low voltage transmission lines corridor
Unlawful deep excavation will affect the post- construction settlement of carriageway pavement and damage the road in furure.
Newly under constructed three-lane dual carriageway

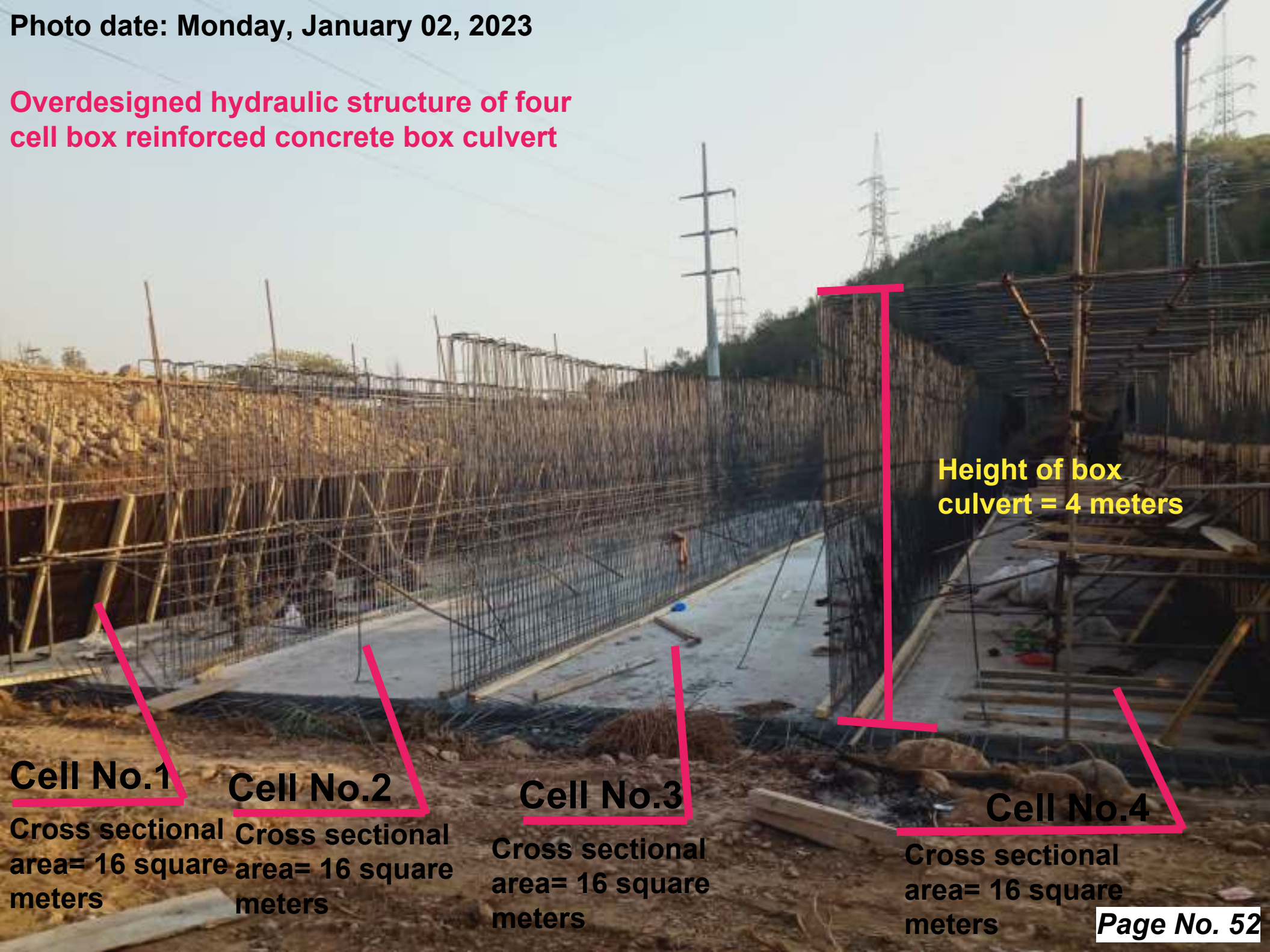


Photo date: Monday, January 02, 2023
Overdesigned hydraulic structure of four cell box reinforced concrete box culvert
Height of box culvert = 4 meters
Cell No.1
Cross sectional area= 16 square meters
Cell No.2
Cross sectional area= 16 square meters
Cell No.3
Cross sectional area= 16 square meters
Cell No.4
Cross sectional area= 16 square meters

Photo date: Monday, January 09, 2023

Sag in overhead transmission lines

Location GPS coordinates:
33°44'10.8"N 73°09'15.9"E

Unsafe carriageway zone because of electromagnetic radiation and low vertical height

Vertical distance from power transmission line to three-lane dual carriageway = 10 – 11 meters

220000 volts (220 Kilovolts) suspension tower
Location GPS coordinates: 33°44'08.7"N 73°09'16.5"E
Near single cell box culvert at chainage 0+185

GOOGLE MAP SATELLITE IMAGE PRIOR TO THE START OF THE BHARA KAHU BYPASS PROJECT

1. A dense jungle of trees is shown on the land of Quaid-i-Azam University, Islamabad, Pakistan at around the location of 33°44'31.9"N 73°09'29.5"E but it was intentionally destroyed Capital development authority (CDA) for the construction purpose of Bhara Kahu bypass Project.

2. Capital development authority's (CDA) main contractor National Logistics Cell (NLC) through its subcontractors destroyed this valuable wildlife habitat for the construction of an underpass for the Bhara Kahu bypass carriageway under a minor rural road named shah dara road.

Photo date: Monday, November 21, 2022

National Logistics Cell

In Step with Tomorrow

Construcion of
Bhara kahu Bypass
Islamabad

Client:

CAPITAL DEVELOPMENT
AUTHORITY

START POINT

Road board and start point of Bhara Kahu bypass project.
Location Coordinates:
33°44'02.8"N 73°09'16.3"E

Existing operational two-lane dual carriageway (N-75 Nationl Highway).

Photo date: Monday, November 21, 2022
Deforestation location:•33°43'58.2"N 73°09'06.3"E
Capital Development Authority (CDA), Islamabad, Pakistan cut the trees and removed forest cover for the construction of Bhara Kahu bypass project

According to the United Nations' Global Forest Goals Report 2021, 75% of emerging infectious diseases are zoonotic, and usually occur when natural landscapes like forests are cleared. Therefore Capital Development Authority's carriageway construction project (Bhara Kahu bypass project) on its own forest area / vegetation area is a highly health risk and compromising the heath security of the people of Islamabad and the faculty teachers/ employees / students of Quaid-i-Azam University, Islamabad , Pakistan

Photo date: Monday, November 21, 2022

Deforestation for construction of carriageway at the location 33°43'57.7"N 73°09'08.9"E

Trees and vegetation is removed in this area

Capital Development Authority (CDA), Islamabad, Pakistan is a federal government entity. Therefore, it is mandatory that Bhara Kahu bypass project need to comply the United Nation's Sustainable Development Goals and Global Forest Goals. But deforestation of forest and vegetation area for the construction of Bhara Kahu bypass project on Capital Development Authority's own land is naked violation of United Nation's Sustainable Development Goal No. 13 and 15, and Global Forest Goals which are inked in United Nations Strategic Plan for Forests 2017–2030.

NOTES

1. ALL DIMENSION ARE IN METER UNLESS NOTED OTHERWISE.

LEGEND

- MurreRoad_RDs
- Chainage x 500 meters
- Proposed Design Center Line
- Proposed Shoulder Edge
- Existing Murre Road
- Existing Roads
- Waterways
- Model College for Girls
- Over Head / Elevated Portion of Road (1km)
- Weekly Bazar

REV.	REVISION/ISSUE	DATE

PROJECT TITLE: BARAKAHU BYPASS

CLIENT: C.D.A CAPITAL DEVELOPMENT AUTHORITY ISLAMABAD

DESIGN CONSULTANT: ZEERUK INTERNATIONAL (PVT)LTD 3rd Floor,Time Square Plaza, I-8 Markaz, Islamabad Ph:051-4938213-4, Fax:051-4938215

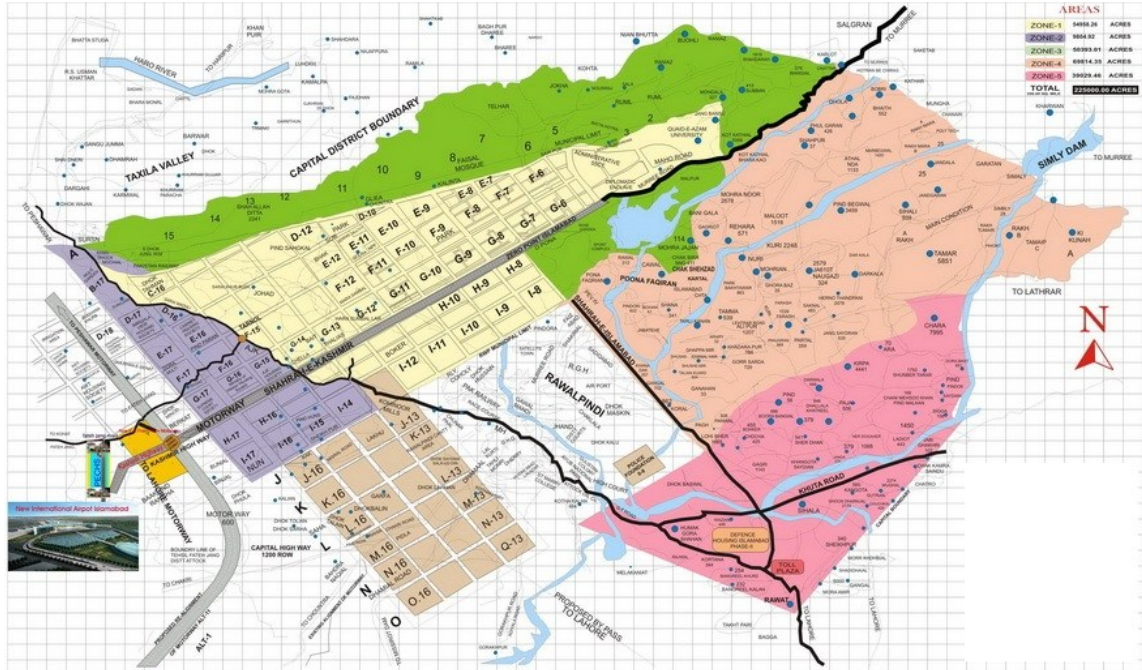
DRAWING TITLE: General Reference Map

Designed By: Muhammad Sulaiman	Sheet No. : 1 of 6
Checked By:	SCALE: 1:12,333
Approved By:	DATE: September 01, 2022
CAD FILE NAME:	

Photo date: Thursday, December 22, 2022

Poor children are collecting and sorting recyclables from garbage near Quaid-i-Azam University

Islamabad Master Plan



Source: Capital Development Authority, www.cda.gov.pk

Respected Chairperson
Human Rights Commission of Pakistan

I would like to report gross violation of human rights by the Capital Development Authority and Environmental Protection Agency Government of Pakistan as they are trying hard to facilitate the construction of Bara Kahu Bypass through Quaid-i-Azam University. The students and faculty of the university feel stressed and anxious since we neither have the means nor strength to counter powerful anti-Quaid-i-Azam University media campaigns and outreach in the power corridors to explain that why preservation of a public sector university is important.

The matter may appear trivial, at first, but it is in fact symptomatic of a far deeper malaise that left unaddressed will cause our national fortunes to continue to suffer and decline.

On September 30, 2022, the Prime Minister inaugurated a development project conventionally referred to as the Barakahu Bypass. What made this project special was that it proposed to alleviate the congestion for travellers to Murree by breaking the Quaid-i-Azam University Campus into two isolated halves. This meant that rather than fix the problem at the point of congestion, which is due to encroachments, the land of the premier seat of higher learning, a university that is our national university and bears the title of our *Quaid* as its own name, was to be turned into a route for heavy traffic. What does say about us as a nation that such a scheme could even be contemplated?

Sadly, this scheme went further that mere contemplation. Without completing any of the essential environmental, legal, and administrative formalities, CDA hired a contractor through non-transparent means and started the work, tearing down trees in the national park area and ravaging a large part of the QAU campus. Thanks to the intervention of some faculty petitioners and the Honorable Islamabad High Court, a stay was granted within QAU campus on October 18, and that stay remains at the time of this writing. QAU administration was complicit in this whole activity and has played a truly shameful role in surrendering the precious land of the university in exchange for empty promises that the CDA itself said it could never implement in its filing before the Honorable IHC on October 28, 2022.

I urge the Human Rights Commission of Pakistan to take notice of this violation of the sacred and constitutionally safeguarded superior right of education. QAU is one of the few places left where deserving students from all over Pakistan can find a competitive education even if they do not come from wealth and privilege. The University is a living symbol of the Federation itself, like this august House. The Human Rights Commission of Pakistan must help to save QAU and urge the Government to reconsider this project, especially when there are better solutions available.

So long as we choose to sacrifice education and build highways, let me assure you, that those highways will lead us nowhere.

Many Thanks and With Best Regards,

Dr. Fouzia Farooq Ahmed
Assistant Professor
Department of History
Quaid-i-Azam University

11/23/2022

Fouzia Farooq Ahmed
Post Doctorate (OCIS, University of Oxford)
Member European Association for South Asian Studies
https://qau.academia.edu/fouziafarooq
Assistant Professor
Department of History
Quaid-i-Azam University
Islamabad-Pakistan
Office: 00925190643193

Photo date: Sunday, December 18, 2022

A residential colony of Quaid-i-Azam University's professors located at Shah dara minor road.

Boundary wall of residential colony of University

Under construction three-lane dual carriageway of Bhara Kahu bypass project

Distance between boundary wall and three-lane dual carriageway = 107 feet (32.6 meters)

And if we take the setback distance from right of way (ROW), It is significantly reduced up to unacceptable limits.

Photo date: Saturday, December 17, 2022

Islamabad model school for girls (class I-VIII)

Location GPS Coordinates:
33°44'39.4"N 73°10'06.4"E

Three-lane dual carriage way of Bhara Kahu bypass project

Road level will be raised more than 5meters from ground elevation

Bypass road project violates the setback distance of school side boundary wall

Existing minor road

IMSG (I-VIII) Kot Hathyal Bhara Kahu Islamabad

To

The Director (School)
Federal Directorate Of Education
Islamabad

Subject, Demolish our School Boundary Wall due to Road Construction

Sir,

A with due respect it is stated that Few points about a Serious Issue Regarding our School building.

(1) I had informed you about the Construction Of By-pass Road along With our schol building One Month ago Sir, you can See in the picture, (We Shore With AEO Office) That the height Of the road is Making our School Unsafe.

(2) The road has blocked the big gate Of our School

(3) The School building along With the road is allready Week and has Cracks in the pillars How Can it bear the Pressure Of Heavy Traffic.

(4) Today Some Officials Of the Highway Come and are Breaking the Boundary Wall Of the School and Coming With 10 Feet According To them it is Coming Into the Road Area.

Please resolve this Issue as Soon as Possible, Urgent basis.

Thanks

Attiya Parveen
IMSG (I-VIII) Kot Hallyal

31/12/22

HANDWRITTEN LETTER TEXT INTO TYPED TEXT

IMSG <1-VIII> Kot Hathyal Bhara Kahu Islamabad

To

The Director <SCHOOL>

Federal Directorate of Education

Islamabad

Subject: Demolish our School Boundary Wall due to Road Construction

Sir,

With due respect it is stated that few points about a serious issue regarding our school building.

<1> I had informed you about the Construction of Bypass Road along with our school building one month ago sir, you can see in the picture , <We share with AEO Office> that the height on the road is making our School Unsafe.

<2> The road has blocked the big gate of our school.

<3> The school building along with the road is **already weak** and has cracks in the pillars. How can it bear the pressure of Heavy Traffic.

<4> Today some officials of the Highway come and are Breaking the Boundary Wall Of the School and Coming with 10 feet. According to them it is coming into the Road Area.

Please resolve this issue as soon as possible, urgent basis.

Thanks

Signature of Headmistress: _____

Date: December 31, 2022

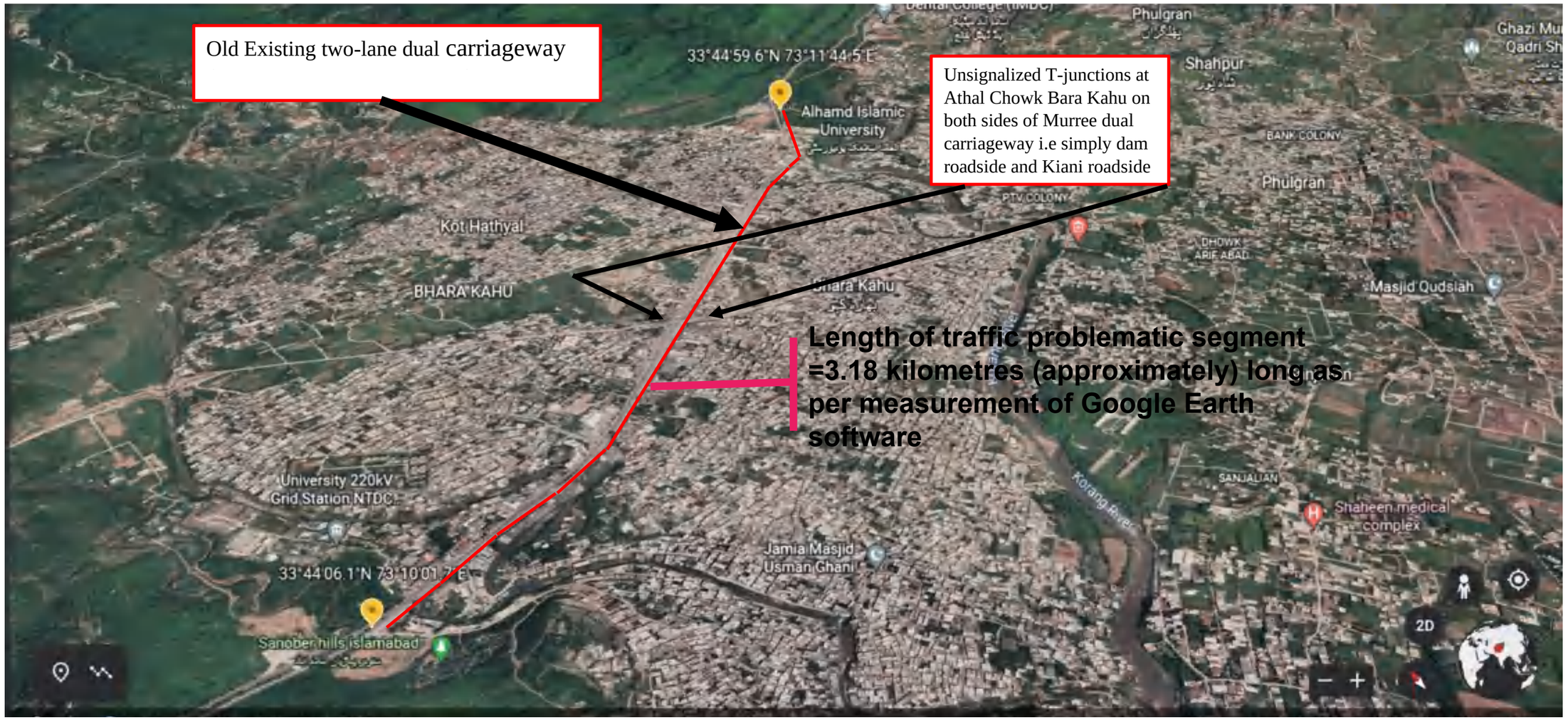
ATTIYA PARVEEN

IMSG <1-VIII> Kot Hathyal

Photo date: Friday, December 30, 2022
Above ground underpass
chainage 3+450
Location GPS coordinates:
33°44'37.5"N 73°11'00.9"E
Three-lane dual carriageway is dangerously close (few feet) to boundary wall of Islamabad Model College for Girls Bhara Kau
(Location GPS coordinates: 33°44'35.2"N 73°10'59.7"E
Carriage way to boundary wall
distance = 7 meters (23 feet)
Height from ground level=
approximately 5 meters (16.4 feet)
Three-lane dual carriageway
Bypass road project violates the setback distance of college side boundary wall.

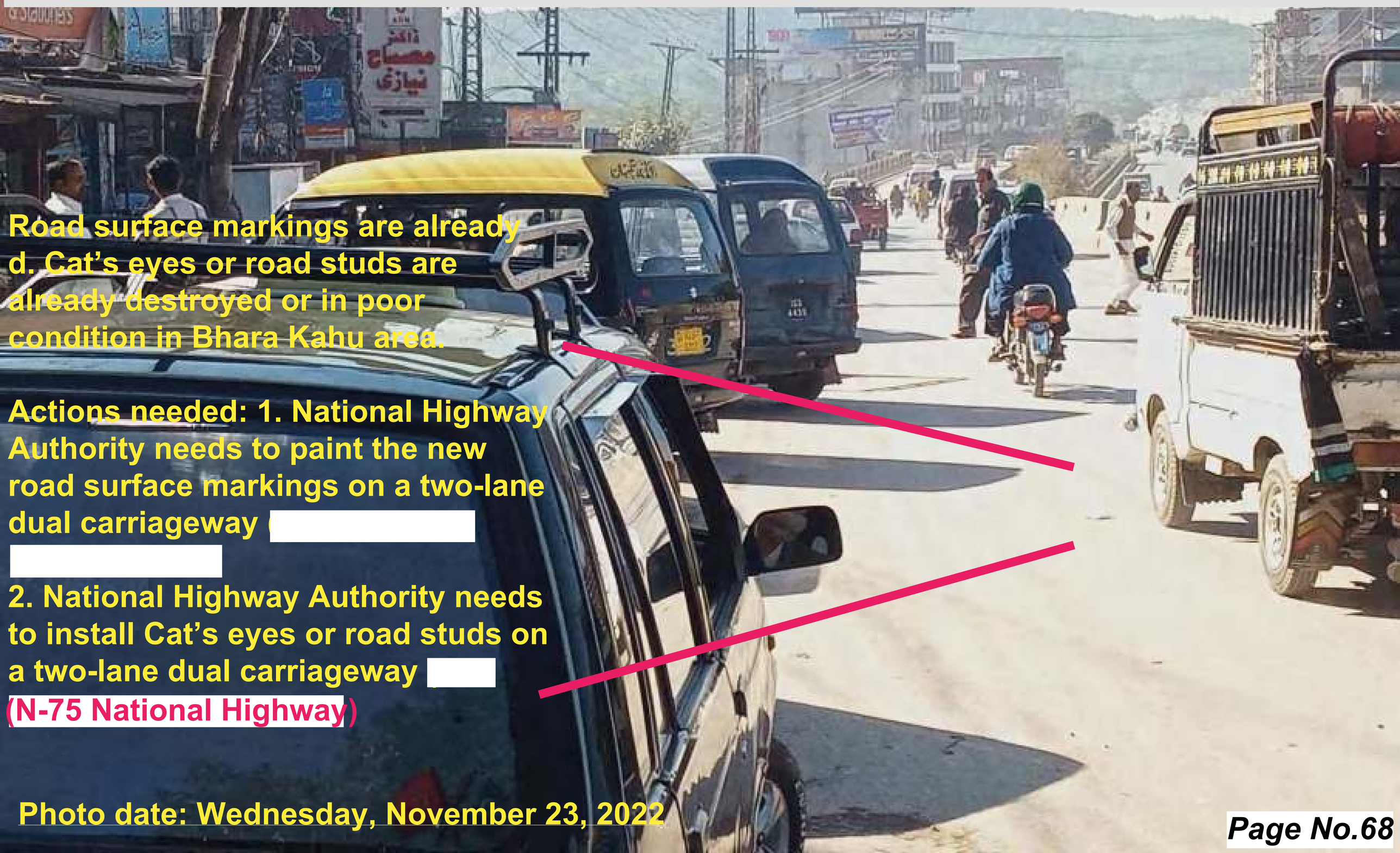
The Bhara Kahu, Islamabad, Pakistan urban area stretches from both sides of the point 33°44'06.1"N 73°10'01.7"E to the point 33°44'59.6"N 73°11'44.5"E on the two-lane dual carriageway 3D satellite map is downloaded from Google Earth.

The traffic congestion area of the two-lane dual carriageway is small and needs traffic engineering and road maintenance.


Old Existing two-lane dual carriageway
33°44'59.6"N 73°11'44.5"E
Alhamd Islamic University
Unsignalized T-junctions at Athal Chowk Bara Kahu on both sides of Murree dual carriageway i.e simply dam roadside and Kiani roadside
Phulgran
Shahpur
BANK COLONY
PTV COLONY
DHOKI ARIF ABAD
Masjid Qudsiah
Kot Hathyal
BHARA KAHU
Length of traffic problematic segment =3.18 kilometres (approximately) long as per measurement of Google Earth software
University 220kV Grid Station NTDC
33°44'06.1"N 73°10'01.7"E
Sanober hills islamabad
Jamia Masjid Usman Ghani
SANJALIAN
Shaheen medical complex
2D

Unlawful vehicles parking on a two-lane dual carriageway (N-75 National Highway) in Bhara Kahu, Islamabad, Pakistan. Illegal Parking of vehicles is the prime cause of traffic congestion in the urban area of Bhara Kahu .

Actions required: Traffic Police need to quickly lift the vehicles and impose heavy traffic fines.



Road surface markings are already d. Cat's eyes or road studs are already destroyed or in poor condition in Bhara Kahu area.

Actions needed: 1. National Highway Authority needs to paint the new road surface markings on a two-lane dual carriageway (N-75 National Highway)

2. National Highway Authority needs to install Cat's eyes or road studs on a two-lane dual carriageway (N-75 National Highway)

Photo date: Wednesday, November 23, 2022

Photo date: Wednesday, November 23, 2022

illegal vehicle parking

Illegal vehicle parking on a two-lane dual carriageway (N-75 National Highway) in Bhara Kahu, Islamabad, Pakistan. Illegal Parking of vehicles is the prime cause of traffic congestion in the urban area of Bhara Kahu .
Actions required: Traffic Police need to quickly lift the vehicles and impose heavy traffic fines.

Photo Date: Wednesday, November 23, 2022

Pothole on a two-lane dual carriageway (N-75 National Highway) in Bhara Kahu area, Islamabad, Pakistan. The pothole is a road hazard and causes accidents. The pothole is also one of the factors to produce traffic congestion.
Actions needed: All potholes need to repair.

Photo date: Wednesday, November 23, 2022

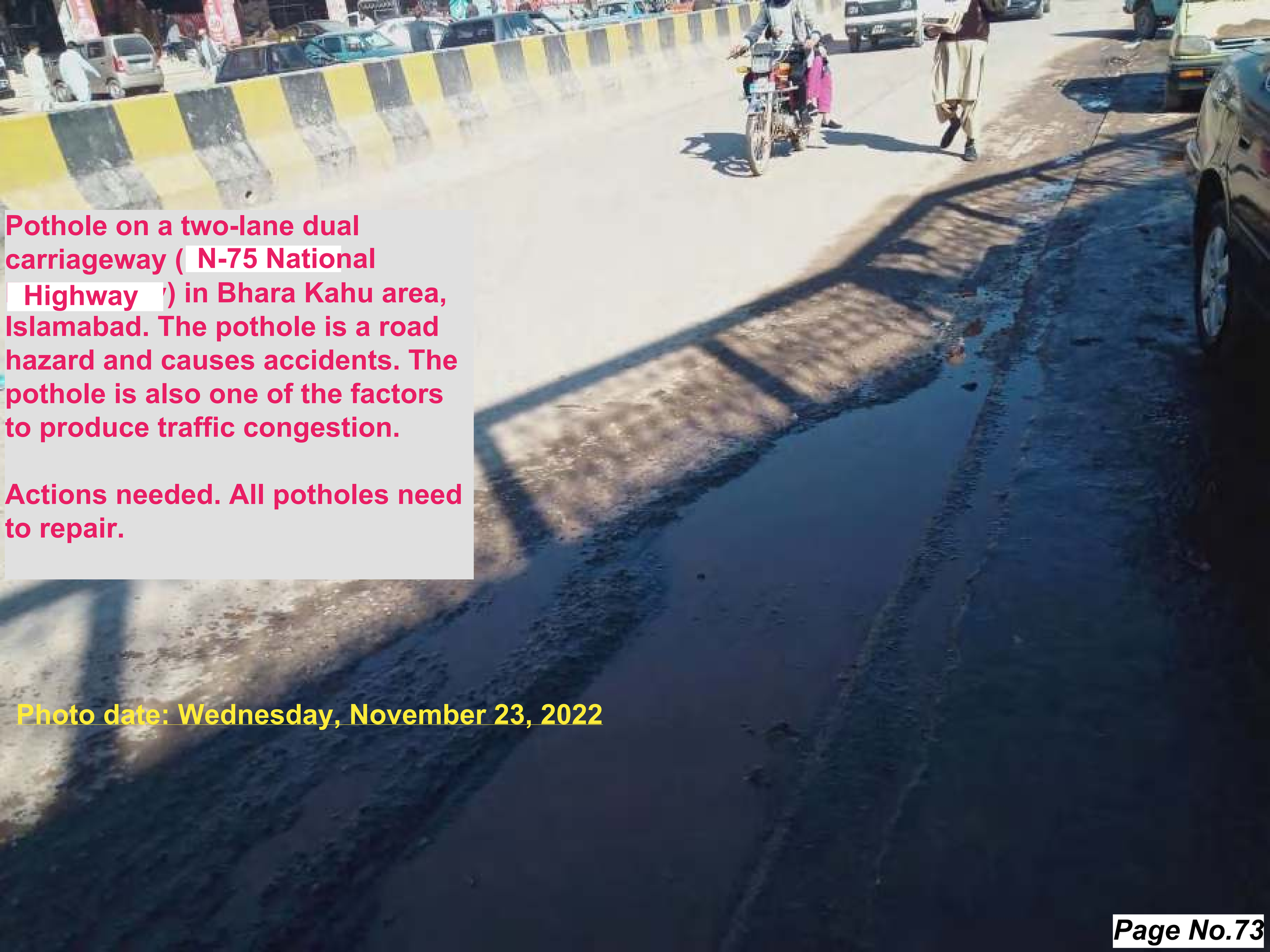
Alligator Cracking is also found on a two-lane dual carriageway (N-75 National Highway) in Bhara Kahu area, Islamabad, Pakistan. It also disturbs the traffic flow and causes traffic congestion. Alligator Cracking is a road hazard.

Actions needed: 1. Traffic Police need to set the load limit for heavy-load vehicles/trucks in accordance with the design of the carriageway.

2. Alligator Cracking area on a two-lane dual carriageway needs to repair.

Photo date: Wednesday, November 23, 2022

Alligator Cracking on a two-lane dual carriageway (N-75 National Highway) in Bhara Kahu area, Islamabad, Pakistan.



Pothole on a two-lane dual carriageway (N-75 National Highway ') in Bhara Kahu area, Islamabad. The pothole is a road hazard and causes accidents. The pothole is also one of the factors to produce traffic congestion.

Actions needed. All potholes need to repair.

Photo date: Wednesday, November 23, 2022

1. National Highway Authority erected the mandatory road sign of 40 kilometers per hour vehicle speed at the location of 33°44'05.3"N 73°09'39.7"E on the two-lane dual carriageway (N-75 National Highway).But this is practically not applicable in Bhara Kahu urban area.
2. National Highway Authority needs to reduce the speed limit of 40 kilometers per hour to 20 kilometers per hour or less vehicle speed at the start and end of Bhara Kahu urban area.
3. The Bhara Kahu urban area stretches from the 33°44'06.1"N 73°10'01.7"E to 33°44'59.6"N 73°11'44.5"E on the two-lane dual carriageway (N-75 National Highway). To avoid traffic congestion in this small urban area, we need only low-cost traffic engineering.

Capital Development Authority, Islamabad, Pakistan's Environmental Terrorism against the Quaid-i-Azam University, which is a public research university, and the President of Pakistan is the Chancellor of this National University.
Location: Premises of Quaid-i-Azam University, Islamabad, Pakistan.
Location Coordinates: 33°44'33.8"N 73°09'32.8"E

Photo date: Monday, November 21, 2022

Capital Development Authority, Islamabad, Pakistan's Environmental Terrorism against the Quaid-i-Azam University, which is a public research university, and the President of Pakistan is the Chancellor of this National University.
Location: Premises of Quaid-i-Azam University, Islamabad, Pakistan.
Location Coordinates: 33°44'33.5"N 73°09'34.0"E

Photo date: Monday, November 21, 2022

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Capital Development Authority, Islamabad, Pakistan's Environmental Terrorism against the Quaid-i-Azam University, which is a public research university, and the President of Pakistan is the Chancellor of this National University.
Location: Premises of Quaid-i-Azam University, Islamabad, Pakistan.
Location Coordinates: 33°44'33.8"N 73°09'32.8"E

Photo date: Monday, November 21, 2022

The boundary wall of Quaid-i-Azam University, Islamabad, Pakistan has removed or demolished the subcontractor of the National Logistics Cell (NLC), Pakistan.

Capital development authority (CDA), Islamabad, Pakistan is a client and National Logistics Cell (NLC), Rawalpindi, Pakistan is the main contractor on Bhara Kahu Bypass Project.

Three-lane dual carriageway chainage 0+575

The boundary wall of Quaid-i-Azam University, Islamabad, Pakistan.

Excavator is doing earthwork (construction activity) on the carriageway of Bhara Kahu bypass on the land of Quaid-i-Azam University, Islamabad, Pakistan.

Photo date: Monday, November 21, 2022

Excavator is earth-moving equipment. The subcontractor of the National Logistics Cell (NLC) is using the excavator for the construction of the carriageway of Bhara Kahu bypass on the land of Quaid-i-Azam University, Islamabad, Pakistan.

The broken boundary wall of Quaid-i-Azam University, Islamabad, Pakistan

Photo date: Monday, November 21, 2022

Capital development authority (CDA), Islamabad, Pakistan through its main contractor National Logistics Cell (NLC) demolished/removed the boundary wall of Quaid-i-Azam University, Islamabad, Pakistan.

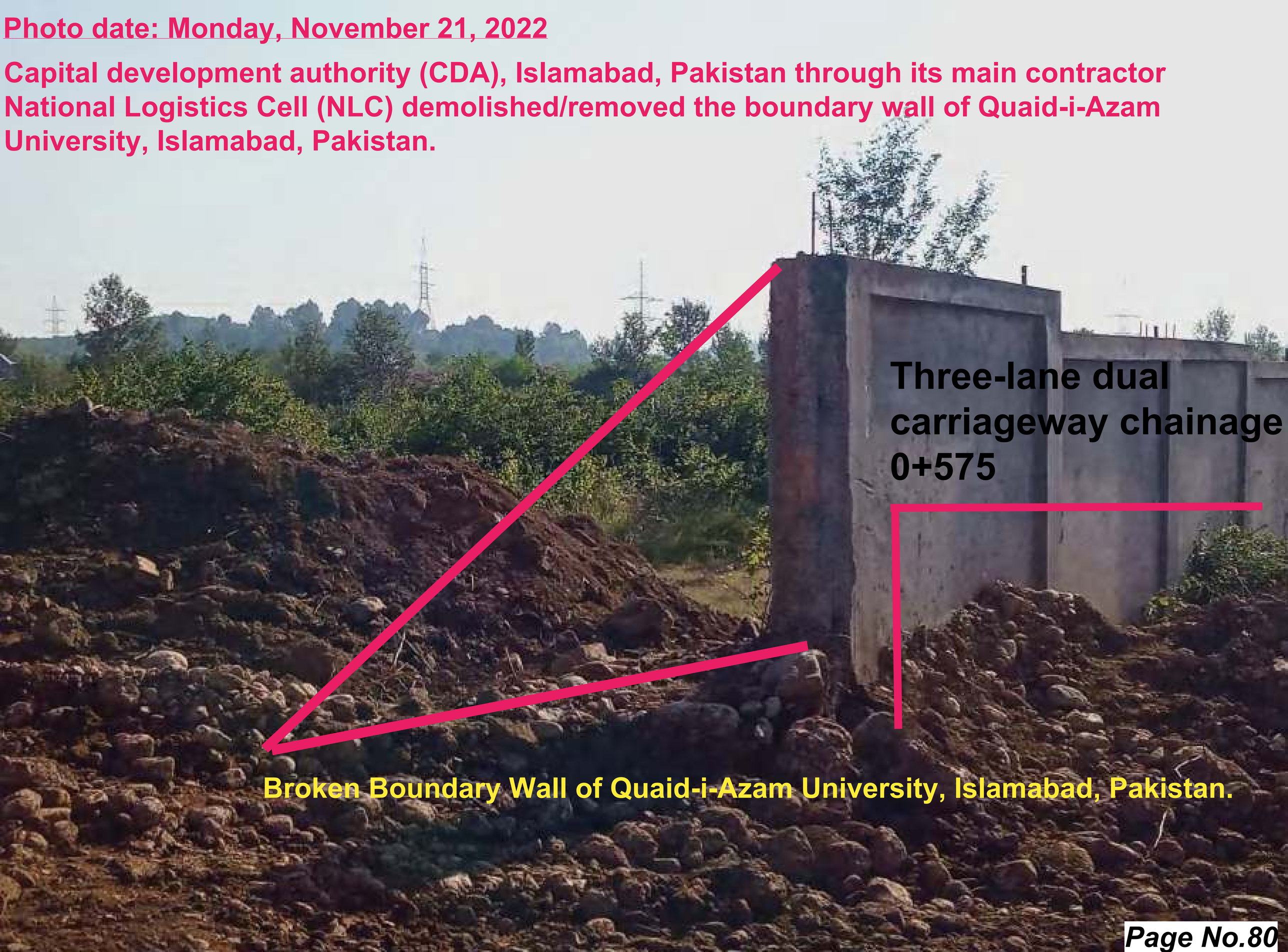


Photo date: Monday, November 21, 2022

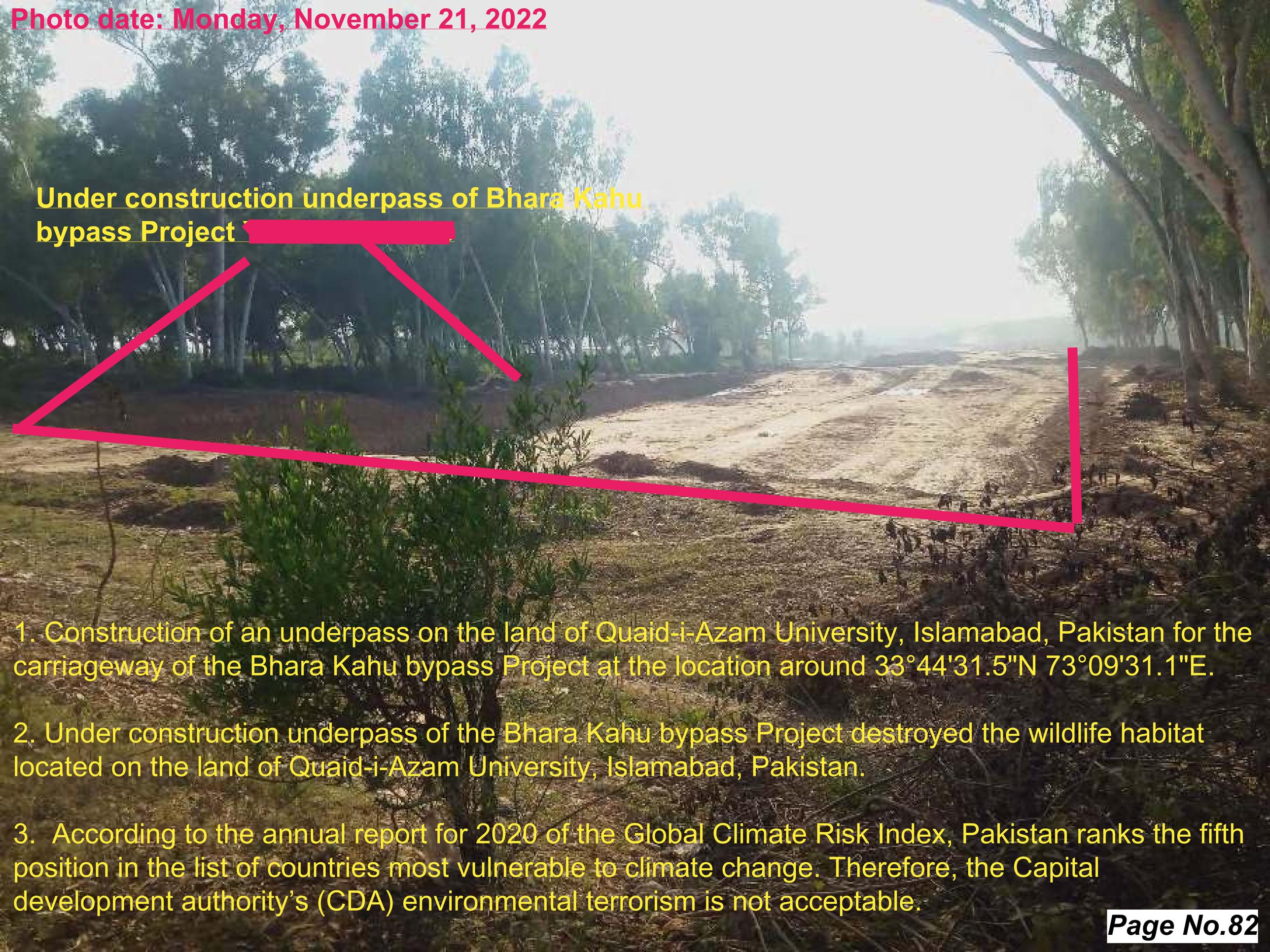
Existing minor rural road named Shah Dara Road, Islamabad, Pakistan

Under Construction carriageway underpass

1. Construction of an underpass on the land of Quaid-i-Azam University, Islamabad, Pakistan for the carriageway of Bhara Kahu bypass Project at the location around 33°44'31.5"N 73°09'31.1"E.

2. This under-construction carriageway underpass will be built under the existing minor rural road named shah dara road. It will spread vehicular air pollution, vehicular noise pollution, and traffic-induced vibrations in the teaching blocks and residential areas of Quaid-i-Azam University, Islamabad, Pakistan.

Photo date: Monday, November 21, 2022



1. Construction of an underpass on the land of Quaid-i-Azam University, Islamabad, Pakistan for the carriageway of the Bhara Kahu bypass Project at the location around 33°44'31.5"N 73°09'31.1"E.

2. Under construction underpass of the Bhara Kahu bypass Project destroyed the wildlife habitat located on the land of Quaid-i-Azam University, Islamabad, Pakistan.

3. According to the annual report for 2020 of the Global Climate Risk Index, Pakistan ranks the fifth position in the list of countries most vulnerable to climate change. Therefore, the Capital development authority's (CDA) environmental terrorism is not acceptable.

Photo date: Monday, November 21, 2022

Unlawful National Logistics Cell's temporary construction camp office for the Bhara Kahu bypass project on the land of Quaid-i-Azam University, Islamabad, Pakistan. This camp is few meters away from the minor Shah Dara Road.

Photo date: Monday, November 21, 2022

National Logistics Cell (NLC), Rawalpindi, Pakistan main contractor of the Capital development authority (CDA) set up a temporary construction camp office on the land of Quaid-i-Azam University, Islamabad, Pakistan. The camp office location is located near coordinates 33°44'26.6"N 73°09'28.0"E. This camp is still in the operational phase.

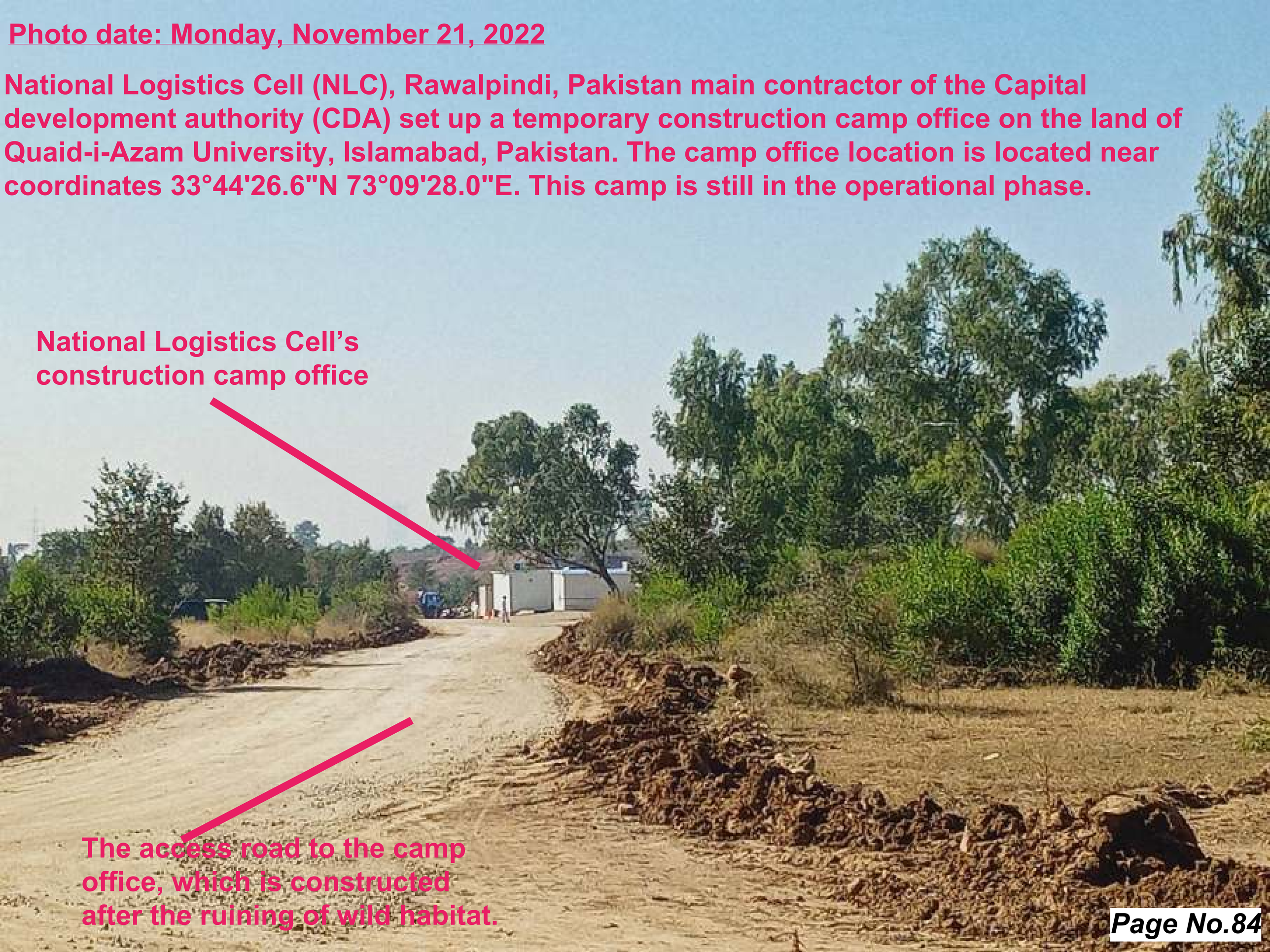

National Logistics Cell's construction camp office
The access road to the camp office, which is constructed after the ruining of wild habitat.

Photo date: Monday, December 12, 2022

Precast yard for pre stressed concrete girders for bridge on the institutional land of Quaid-i-Azam University, Islamabad , Pakistan.
Location GPS Coordinates:
33°44'40.7"N 73°09'58.7"E

Potential Hazard

Bridge girder shutter

Paskistani Labour has extremely risky working position but no safety helmet and no safety shoes.

Photo date: Friday, December 02, 2022

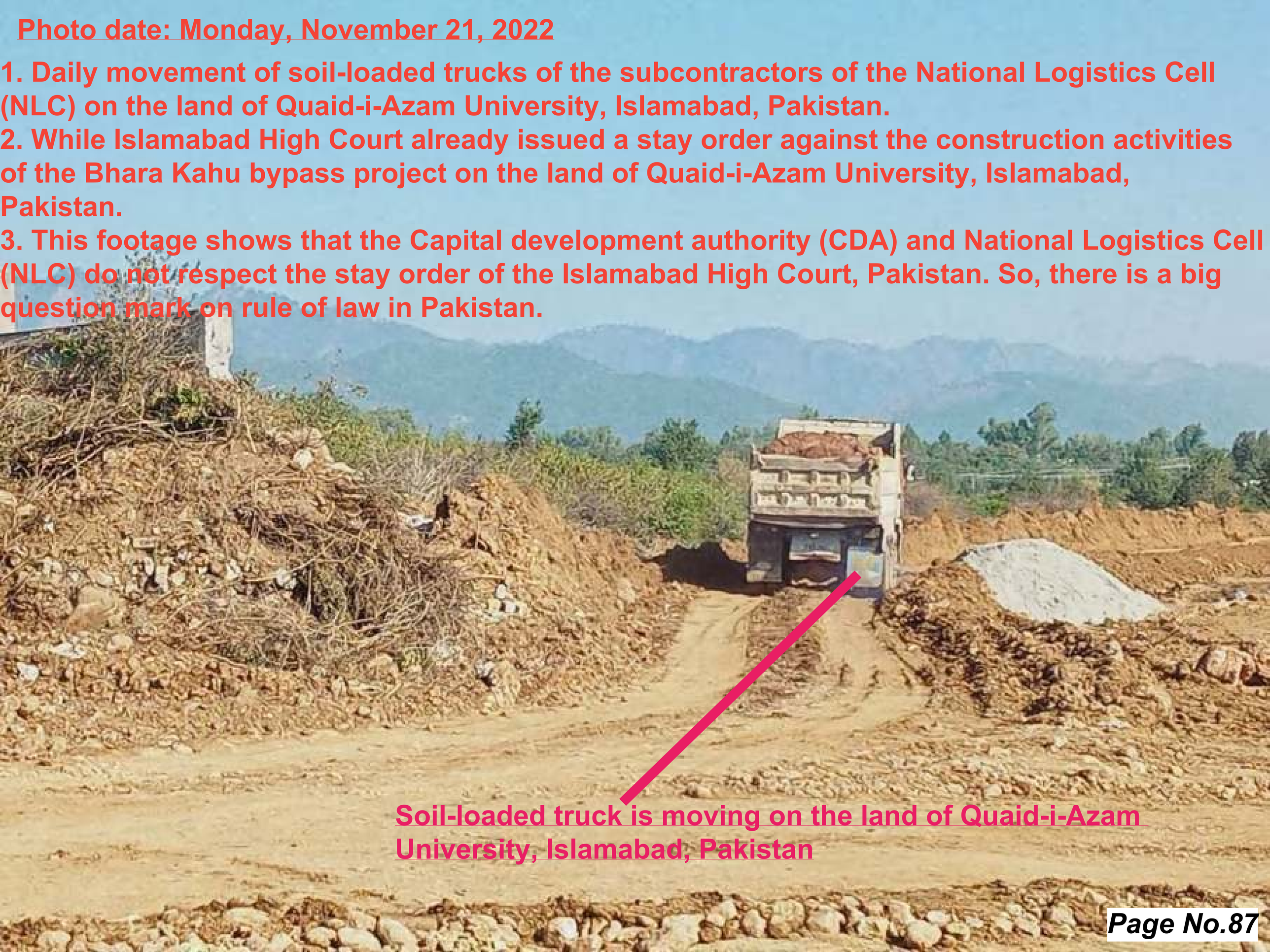
Concrete Batching Plant No.1 is operational on the institutional land of Quaid-i-Azam University, Islamabad, Pakistan.
Location GPS Coordinates: 33°44'44.0"N 73°09'51.7"E

Photo date: Monday, November 21, 2022

1. Daily movement of soil-loaded trucks of the subcontractors of the National Logistics Cell (NLC) on the land of Quaid-i-Azam University, Islamabad, Pakistan.

2. While Islamabad High Court already issued a stay order against the construction activities of the Bhara Kahu bypass project on the land of Quaid-i-Azam University, Islamabad, Pakistan.

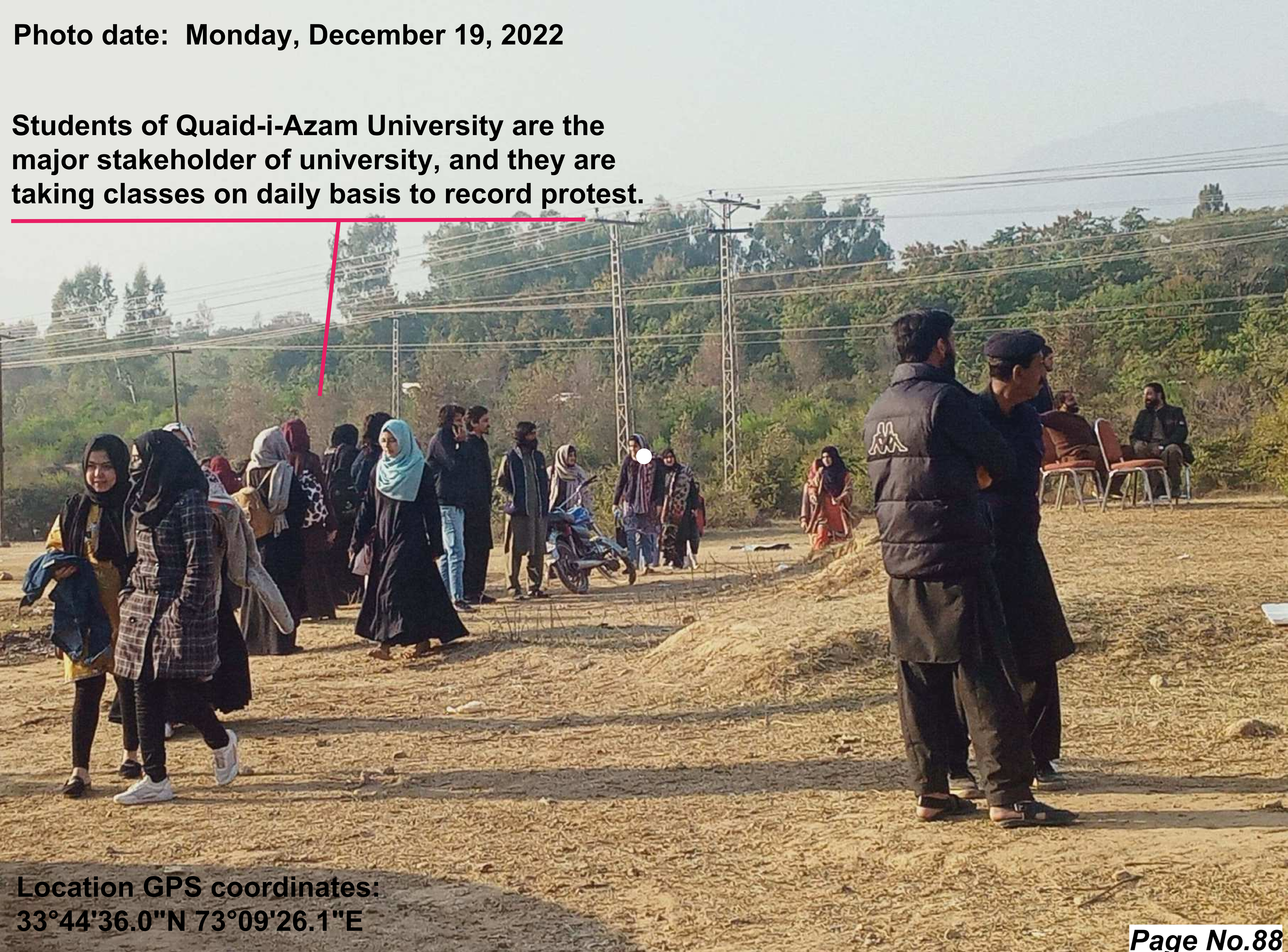
3. This footage shows that the Capital development authority (CDA) and National Logistics Cell (NLC) do not respect the stay order of the Islamabad High Court, Pakistan. So, there is a big question mark on rule of law in Pakistan.



Soil-loaded truck is moving on the land of Quaid-i-Azam University, Islamabad, Pakistan

Photo date: Monday, December 19, 2022

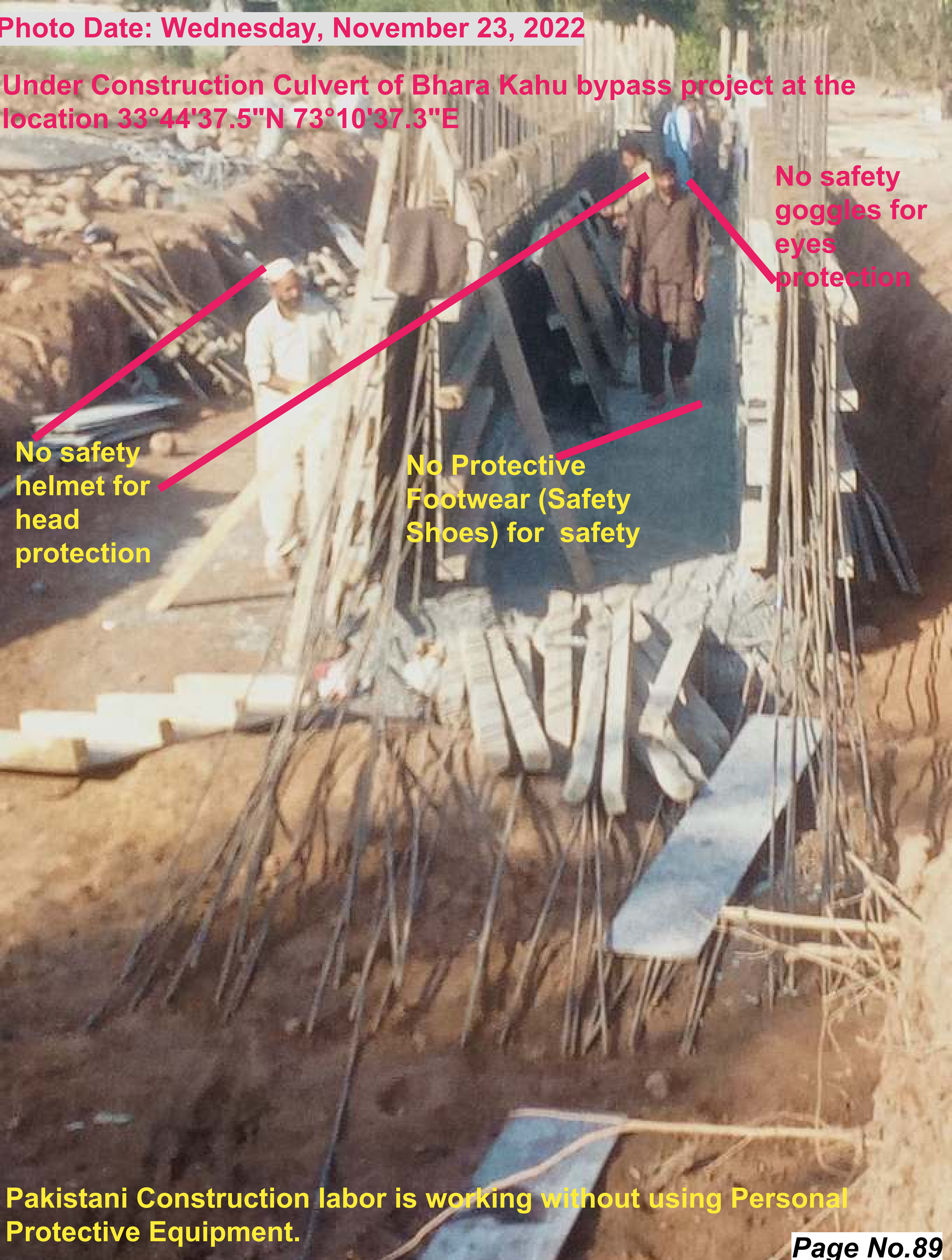
Students of Quaid-i-Azam University are the major stakeholder of university, and they are taking classes on daily basis to record protest.



Location GPS coordinates:
33°44'36.0"N 73°09'26.1"E

Photo Date: Wednesday, November 23, 2022

Under Construction Culvert of Bhara Kahu bypass project at the location 33°44'37.5"N 73°10'37.3"E

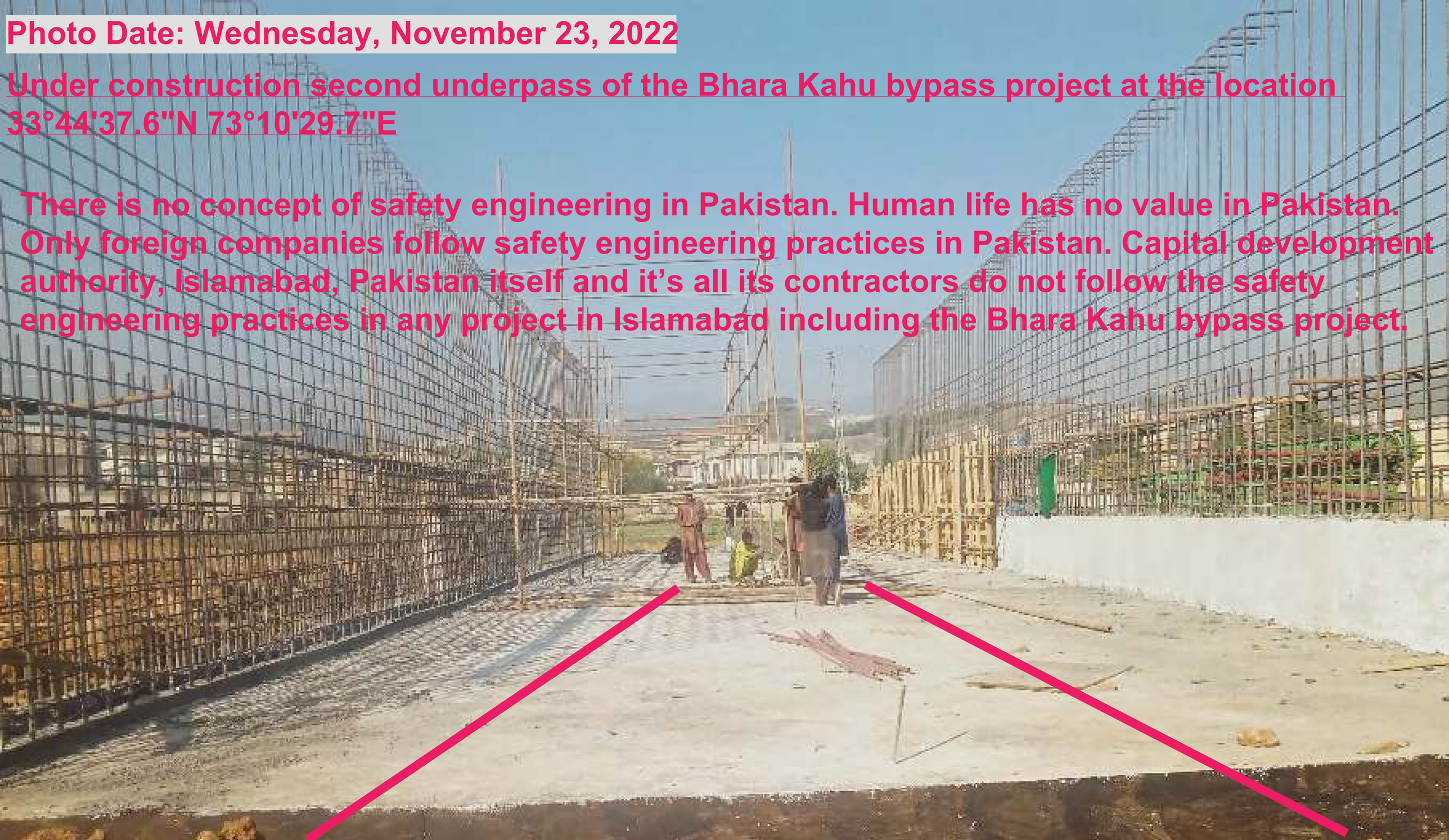

No safety goggles for eyes protection
No safety helmet for head protection
No Protective Footwear (Safety Shoes) for safety

Pakistani Construction labor is working without using Personal Protective Equipment.

Photo Date: Wednesday, November 23, 2022

Under construction second underpass of the Bhara Kahu bypass project at the location 33°44'37.6"N 73°10'29.7"E

There is no concept of safety engineering in Pakistan. Human life has no value in Pakistan. Only foreign companies follow safety engineering practices in Pakistan. Capital development authority, Islamabad, Pakistan itself and it's all its contractors do not follow the safety engineering practices in any project in Islamabad including the Bhara Kahu bypass project.



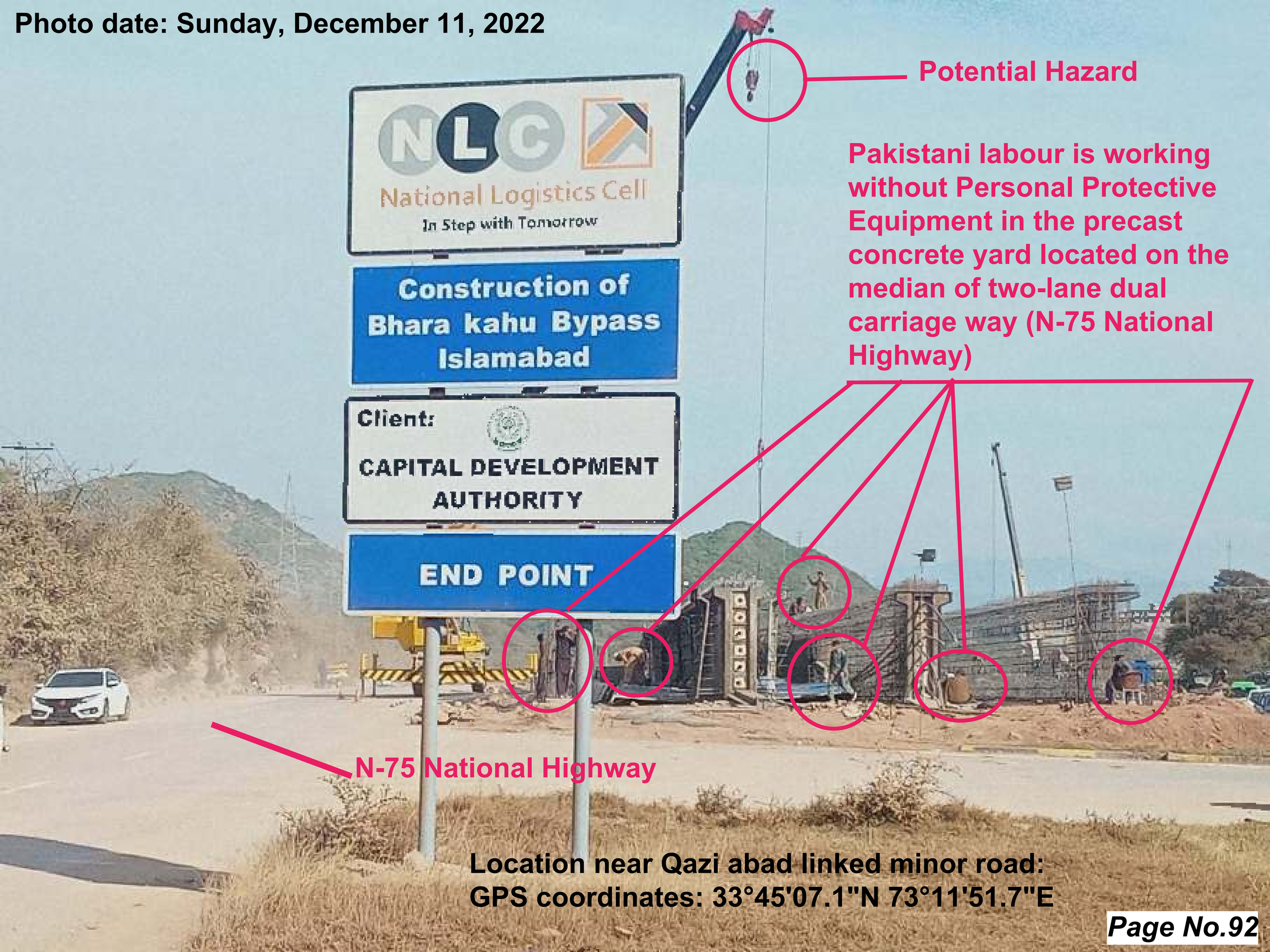
Pakistani labour is working without the below-mentioned Personal Protective Equipment.
1. No Protective Footwear (Safety Shoes) for safety.
2. No safety helmet for head protection.
3. No safety goggles for eyes protection.
4. No safety gloves

Photo Date: Wednesday, November 23, 2022

Under construction third underpass of the Bhara Kahu bypass project.
This underpass will go under Kiani road.

No safety helmet for head protection
No Protective Footwear (Safety Shoes) for safety
No rebar safety caps
No safety goggles for eyes protection
No safety gloves

Photo date: Sunday, December 11, 2022



Location near Qazi abad linked minor road:
GPS coordinates: 33°45'07.1"N 73°11'51.7"E

Photo date: Saturday, December 17, 2022

Junction of Kiani minor road and Shah dara minor road (Location GPS coordinates: 33°44'35.8"N 73°09'30.5"E)

In present scenario, crane is a road hazard.

Crane outrigger

Crane outriggers

If hydraulic pressure drops in crane outriggers because of miscellaneous reasons, both Pakistan labour can die or get serious injuries.

Quaid-i-Azam University premises

Photo date: Sunday, December 11, 2022

Excavator is working under overhead power lines and near power lines which are not de-energized. This is very life risky position for the Pakistani excavator operator.

Photo date: Sunday, December 11, 2022

In order to avoid human injuries / deaths, concrete jersey barriers are needed to be placed. Water-filled plastic jersey barriers cannot stop the very low speed vehicles from falling into the deep pilling pit.

More than 10 feet deep pilling pit

Water-filled plastic jersey barriers

Road Hazard

Photo date: Saturday, November 26, 2022

An elevated carriageway (flyover) of 1.33km is under construction on the existing old two-lane dual carriageway (N-75 National Highway). 300 piles for an elevated flyover are in the construction phase on the existing old two-lane dual carriageway.

A hydraulic rig for piling is not barricaded with hard barricades. Hydraulic rig is a road hazard.

Old two-lane dual carriageway (N-75 National Highway)

Photo date: Saturday, November 26, 2022

An elevated carriageway (flyover) of 1.33km is under construction on the existing old two-lane dual carriageway (N-75 National Highway).

All kinds of traffic move Murree on the existing old two-lane dual carriageway. A large percentage of vehicles do not comply with the vehicle regulations (WP.29) and Global Technical Regulations (GTRs). This is also one of the causes of vehicle accidents, road deaths, injuries, and traffic congestion.

No fire extinguishers available in hydraulic rigs for piling.

Sunday, January 15, 2023

Scaffolding is dangerous for road users

Green Line Metro Bus Service
Appreciable initiative of
Government of Pakistan

National Highway N-75